



# National Offender Management Service

## NOMS Health and Safety Arrangements - Assessment and Control of Radon Exposure in NOMS' Custodial Premises

<b>This instruction applies to:-</b>		<b>Reference:-</b>
NOMS Headquarters Prisons		<b>AI 14/2015</b> <b>PSI 19/2015</b>
<b>Issue Date</b>	<b>Effective Date</b>	<b>Expiry Date</b>
07 July 2015	07 July 2015	31 March 2018
<b>Issued on the authority of</b>	NOMS Agency Board	
<b>For action by</b>	All staff responsible for the development and publication of policy and instructions <input checked="" type="checkbox"/> NOMS HQ <input checked="" type="checkbox"/> Public Sector Prisons <input type="checkbox"/> Contracted Prisons <input checked="" type="checkbox"/> NOMS Immigration Removal Centres (IRCs) <input checked="" type="checkbox"/> Governors <input checked="" type="checkbox"/> Heads of Groups <i>* If this box is marked, then in this document the term Governor also applies to Directors of Contracted Prisons</i>	
<b>Instruction type</b>	Health and Safety Risk Reduction and Legal compliance	
<b>For information</b>	All staff and managers	
<b>Provide a summary of the policy aim and the reason for its development/ revision</b>	To define nationally the arrangements in place in NOMS to survey and assess the risk of Radon Gas exposure in NOMS	
<b>Contact</b>	Jim Noonan National Lead, H+S, NOMS; 07807 509865; <a href="mailto:jim.noonan@noms.qsi.gov.uk">jim.noonan@noms.qsi.gov.uk</a>	
<b>Associated documents</b>	<a href="#">PSI 06/2015 Policy Organisation and Summary Arrangements for the Management of Health and Safety</a>	
<b>Replaces the following documents which are hereby cancelled:</b> OHS Guidance Note 03/2011.		
<b>Audit/monitoring:</b> Compliance with this instruction will be monitored at three levels: a) Locally via quarterly regular report to establishment SMTs and health and safety committees via the NORCET HSF monitoring tool. b) Regionally via establishment assurance visits from regional HSF teams with summary reports to DDCs. c) Nationally via NORCET summary to NEMC's HSF Sub-committee and IAA 3 yearly G+O Audits.  See also section 2.8 on monitoring		
<b>Introduces amendments to the following documents:</b> Not applicable		
<b>Notes:</b> <i>All Mandatory Actions throughout this instruction are in italics and must be strictly adhered to.</i>		

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## 1. **Executive Summary**

- 1.1 This PSI lays out the minimum requirements for the control of exposure to the naturally occurring radioactive gas Radon in NOMS' premises. Radon is the UK's single largest contributor to background radiation exposure levels and is harmful by inhalation, contributing to lung disease including lung cancer relative to concentration and exposure. The PSI identifies the action necessary in establishments and other NOMS sites to evaluate and measure radon exposure and subsequently assess, control and monitor the risk to staff, prisoners and third parties.

### Background

- 1.2 Radon is a naturally occurring radioactive gas that may build up in indoor areas, particularly confined or underground spaces. Radon gas is present in many areas of the UK at a wide range of levels. Locations with raised levels are known as 'Radon Affected Areas' (RAA).
- 1.3 Details of these areas and their levels of radon are held by Public Health England and are accessible via their website UKRadon (<http://www.ukradon.org>)

### **Health Effects of Radon**

- 1.4 Inhalation of radon may cause damage to lung tissue, increasing the risk of lung cancer. The risk of harm is influenced by the concentration of the gas and the duration of exposure. Adverse health effects are significantly worse in smokers.

### **Duties of Employers**

- 1.5 As an employer and controller of premises, NOMS must ensure that it assesses and controls, where necessary, the exposure to radon gas of staff, prisoners and visitors, to ensure it minimises the risk of adverse health affects to those in its premises. It is important to note that prisoners may potentially be exposed for long periods equivalent to domestic exposure so both domestic and workplace exposure thresholds are used.

### **Exposure Measurement and Action levels**

- 1.6 Radon is measured in Becquerel's per cubic metre (Bq / m<sup>3</sup>) and exposure action levels are set by law for workplaces. Where Radon levels are shown to exceed the action levels, averaged over any 24 hour period, measures to reduce exposure are required to be implemented.

These action levels are:

- i. 400 Bq m<sup>3</sup> for any workplace or workroom
- ii. 200 Bq m<sup>3</sup> for any home, including all cellular and other sleeping accommodation

### Desired outcomes

- 1.7 Implementation of the PSI, including that of the control measures identified by the risk assessment approach it outlines, should:
- i) Reduce risks to health, from radon exposure, of prisoners, staff and third parties to the lowest reasonably practicable level and below specified legal threshold levels
  - ii) Ensure compliance with relevant legislative and common law duty of care requirements thereby protecting NOMS from enforcement and or legal action.

Application

- 1.8 *All senior managers must be aware of the need to provide oversight of these arrangements as per 2.11. Governors must be aware of the scope and intention of the PSI, and the need to put it into effect and monitor its implementation.*
- 1.9 *Health and Safety Sponsors and Advisors, Estates Services Managers and Heads of Residential function must be familiar with its detail.*
- 1.10 *Local HS Committees, Union HS Officials and other relevant Staff Representatives must be made aware of the PSI and consulted on its implementation and monitoring locally.*
- 1.11 *All staff have a statutory right to be informed of the risks to which their work exposes them and the methods NOMS uses to control these risks. All staff are legally required to co-operate with their employers on matters of health and safety.*

Mandatory actions

- 1.12 *Directors, Deputy Director of Custody, Heads of Group and Governors must take steps to ensure that the relevant staff (1.12) are selected and charged to work towards confirming that:*
- i) A suitable and sufficient radon survey and assessment is in place and its controls monitored in line with this PSI or:*
  - ii) Reviewing and revising existing surveys and assessments in the light of this PSI and developing appropriate action plans, where required*
- 1.13 *In establishments Governors must ensure that the following organisation is in place:*
- i) Estates Services Managers must work with Establishment Health and Safety Advisors and NOMS' Radiation Protection Advisor (RPA) to ensure effective Radon surveying and risk assessment is in place.*
  - ii) Implementation of engineering controls will be either by regional estates services or MoJ Estates subject to financial thresholds and project size.*
  - iii) Ensuring implementation of local procedural and contingency controls (including ongoing maintenance, test and inspection) will be via the Governor and relevant functional managers.*
  - iv) Changes to local controls or conditions and monitoring reports must be made available to the relevant Health and Safety Committee.*

Resource Impact

- 1.14 *No permanent or temporary staffing issues arise. Many of the technical and procedural measures for control are likely to be in place and / or accommodated in existing budgets or programmes. The transition to standardising requirements, as opposed to offering guidance may mean that some locations may revisit their assessments and improve their compliance leading to some local demands but it is likely that these will be accommodated in existing programmes or put through capital or local bid prioritisation processes.*

(Approved for Publication)

**Carol Carpenter**  
**Director of Human Resources, NOMS**

## 2. **Operational instructions**

([Annex C](#) sets out procedural steps)

### Subterranean Room Register

- 2.1 *All establishments and sites, irrespective of their location, must develop and maintain a register of any below-surface workrooms or accommodation, complete with an evaluation of the duration of occupancy for each area. These lists are to be reviewed when a change of use occurs or at least annually.* The register can be maintained electronically or manually via existing premises management systems.

### Subterranean Work Rooms in Sites wholly outside RAA

- 2.2 Below-surface work rooms in which the exposure of staff is less than 50 hrs per year **do not** require radon monitoring in non-RAAs.
- 2.3 However, where below-surface work rooms are present and used above the 50 hour threshold, even in officially non radon-affected areas, monitoring of radon levels by an approved means of measurement (refer to UKRadon, Ionising Radiation Regulations and NOMS' RPA for currently validated methods) is to be carried out under the advice of NOMS' RPA to quantify the risk of radon exposure. These surveys are to be repeated at least every 10 years or more frequently on the advice of the RPA.

### Radon Interactive Map

- 2.4 *Establishments and sites must check via the interactive map at the UKRadon website if their site or any part of it, is within a 1 km grid square of a radon affected area (RAA). These surveys are to be reviewed every 3 years.*
- 2.5 All below surface prisoner residential accommodation will require monitoring and the lower, residential action level will apply.

### Premises in Radon Affected Areas

- 2.6 Where a site or any part of it lies within a radon affected area, there are two choices:
- The site can commission monitoring of radon levels covering samples of relevant buildings, especially those with cellular/sleeping accommodation, in order to quantify the levels of radon present within buildings and assess the likely health effects of exposure.
  - Alternatively, the site can request a detailed survey via the British Geographical Survey website which will establish if the site lies outside or inside specific radon areas within the 1km grid square.

*These surveys are to be repeated every 10 years or more frequently on the advice of the RPA.*

### UK Radon Post Code Surveys

- 2.7 The "post code" surveys offered by UK Radon only operate at a radius of 25m from the post code and should not be used for sites larger than this. For buildings of no more than 25mx25m with an identifiable post code and address, this is a valid means of confirming if

the site is in a RAA or not. However for large sites with complex layouts it may well show ambiguous results. Refer to [Annex B](#).

### Radon Risk Assessment

2.8 A risk assessment of exposure is to be made and documented for each establishment or site in respect of those affected. This should outline the controls and monitoring in place to maintain levels well below the statutory action levels. Advice should be sought from the NOMS RPA in developing these assessments. Advice on control designs and systems is available at the UKRadon website, via MoJ Estates and from NOMS internal guidance on MyServices and NOMS RPA.

### Planning additional Control Action

2.9 *Where levels are found to exceed, or be unsafely close to statutory action levels, additional controls must be considered, selected and implemented subject to the advice of NOMS Radiation Protection Advisor (RPA).* Mitigation measures should be implemented under advice from the RPA pending controls specified by the assessment. Alternatively, areas should cease to be used until permanent measures are implemented. The selected design and procedural changes to achieve adequate levels of control should be integrated into relevant business:

- i) Plans and / or processes such as:
- ii) Works capital or maintenance programmes
- iii) Staff training and briefing plans
- iv) Prisoner information and induction arrangements
- v) Local operational rules and procedures

### Records

2.10 The following records are to be created and maintained for a period of fifty years from the date of creation:

- i) Postcode surveys
- ii) Lists of below ground workrooms and their occupancy levels
- iii) Lists of below ground accommodation
- iv) RPA survey reports detailing all relevant radon levels
- v) Risk assessments and significant findings
- vi) The "Local Radon Implementation Summary Record" outlined in [Annex A](#)

2.11 Monitoring and Review;

- i) Heads of Group, Deputy Directors, and Governing Governors are to assure compliance with these arrangements during their quarterly NORCET returns or other HS assurance returns. .
- ii) *Regional Leads HS&F must monitor compliance with these arrangements during establishment visits and record outcomes in assurance reports and via regional NORCET returns.*
- iii) IAA will sample compliance selectively during Governance and Order audits
- iv) RPA visits will assist in assessing local measures
- v) Policy review in line with 3 year cycle.

### 3. **Policy and Strategic Context**

The Health and Safety at Work Act 1974, the Management of Health and Safety at Work Regulations 1999 and the Ionising Radiation Regulations 1999 set the legal framework on which this PSI is based. The Building Regulations include requirements for design consideration in terms of Radon management. *Newer prison premises should therefore have intrinsic control where radon is a risk but these must be tested and maintained.* Local risk assessments will reflect these differences.

#### 4. **Guidance**

Further Guidance is available at [www.UKRadon.org.uk](http://www.UKRadon.org.uk) and internally via Regional Health and Safety Leads and NOMS Radiation Protection Advisory Contractor (refer to policy lead for details)



**Annex A*****NOMS Local Establishment Radon Assessment Implementation Summary Record***

Establishments should maintain the following summary record on Rivo: (text in bold italics indicates delete as appropriate).

1. A radon postcode survey has been obtained for the postcode(s) .....on.....(date)
2. This indicates that HM ..... ***is / is not*** ( delete as applicable) in a radon affected area
3. A list of all below ground rooms can be found at .....and was last reviewed .....( date)
4. Air sampling ***has/has*** not been carried out on ....(report date).
5. Results of air sampling are held at: .....(location).....
6. Sampling indicates that radon levels ***exceed / are below*** the action level of 400 Bq/m3 for any workroom
7. Where sampling for workrooms exceeds the action level, measures to reduce the level as low as is reasonably practicable have been taken.
8. Sampling for sleeping accommodation indicates that radon levels ***exceed / are below*** the action level of 200 Bq/m3 for sleeping accommodation, including cellular accommodation.
9. Where levels in sleeping accommodation exceed the action level, measures to reduce the levels to less than 100 Bq/m3 where the occupants smoke or to the lowest reasonably practicable level have been implemented.
10. A copy of the risk assessment is available at.....

Summary Approved by:

Estates Regional Services Manager,

Date:

Regional Health and Safety Lead

Date:

Authorised by:

Governor

Date:

## Usefulness of UK Radon Post Code Surveys in Sites above 25m X 25m

The “post code” surveys offered by UKRadon only operate at a radius of 25m from the post code and should not be used for larger sites. For buildings of no more than 25m X 25m with an identifiable post code and address, this is a valid means of confirming if the site is in a RAA or not. However for large sites with complex layouts it may well show ambiguous results.

Figure 1 below demonstrates this clearly and is based on a specific NOMS prison establishment. In this case, the more detailed BGS survey may establish that the whole site is actually outside the risk area whereas the 1km grid square on the UKRadon map shown simply shows the worse case probability of Radon measured anywhere in the grid square.

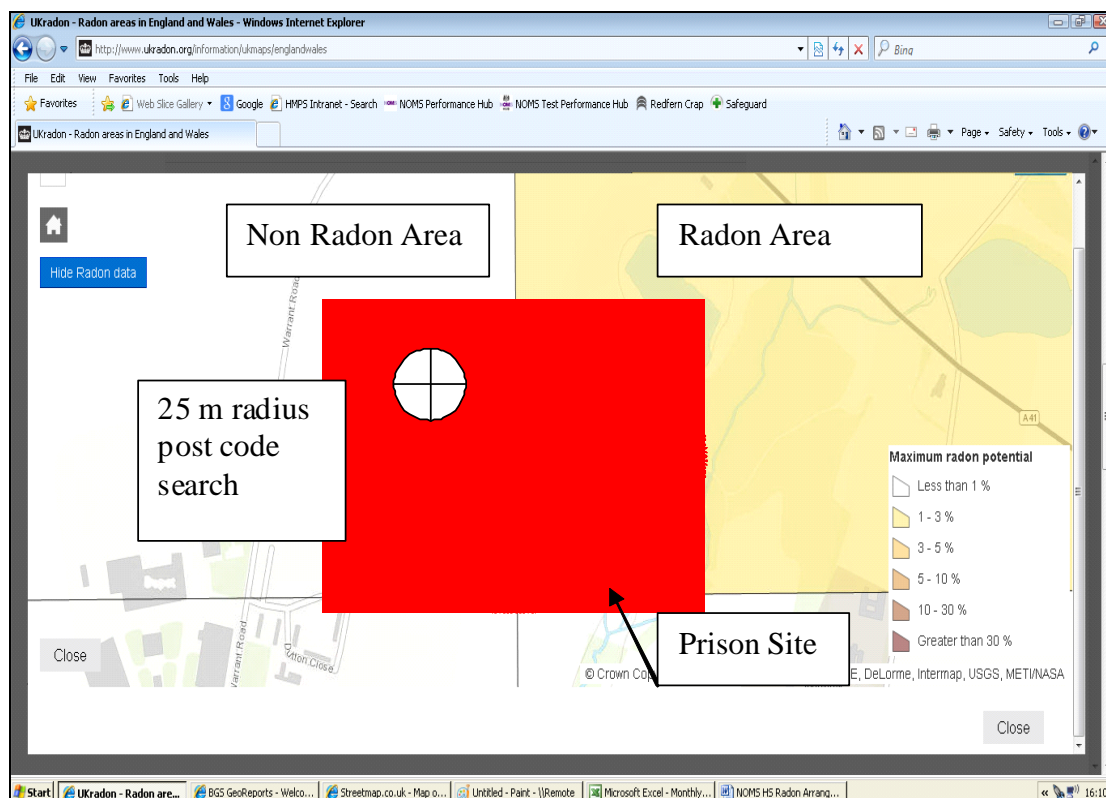


Figure 1- Use of Post Code Radon Surveys limited to Site Size

## Procedural Steps

1. All Sites whether in Radon Affected Area (RAA) or not:  
Check if you have subterranean work rooms and or living accommodation.

### Subterranean Work Rooms

- 1.1 If subterranean work rooms are occupied more than 50hrs per year, you will need to monitor radon levels to inform a subsequent risk assessment. You should contact NOMS RPA to discuss monitoring strategies and temporary mitigation pending survey results.

### Subterranean Living Accommodation

- 1.2 If you have occupied subterranean living accommodation you will need to monitor radon levels to inform a subsequent risk assessment. You should contact NOMS RPA to discuss monitoring strategies and temporary mitigation pending survey results.

2. Are you in a RAA?

- 2.1 Sites less than 25m x 25m.

- You can undertake a postcode radon survey via the UK Radon website. This will identify if you are in an affected area.
- If you are you in a RAA, contact NOMS RPA to discuss monitoring radon levels to inform a subsequent risk assessment of exposure in work and or accommodation rooms and temporary mitigation.

- 2.2 Sites over 25m x 25m.

You can check the UKRadon Indicative Radon Map online (<http://www.ukradon.org/information/ukmaps/englandwales>) to see if you are in a RAA. If you are in a RAA, you can proceed as per 2.1 ii above or:

Commission a British Geological Survey Radon report (about £50) from [http://shop.bgs.ac.uk/georeports/info.cfm?STD\\_REP=S003](http://shop.bgs.ac.uk/georeports/info.cfm?STD_REP=S003) which holds much more detailed data on Radon levels within the large area you specify. This may reveal that your specific location is not affected even though it appears to be from the UK Radon indicative map.

3. Mitigation and Control

Where exposure is present the monitored levels and subsequent risk assessment should indicate the necessary prevention and control measures. These may include Radon sumps, ventilation and extraction arrangements, changes of use and occupation patterns. All measures need to be monitored and maintained at intervals appropriate to the risk and or supplier or RPA recommendations.

4. Records

Records of the process should be kept on the form NOMS Local Establishment Radon Assessment Implementation Summary Record at [Annex A](#).

5. Information and Training and Consultation

Staff, prisoners and 3<sup>rd</sup> parties should be informed of the findings of any assessment and the means by which the risk is controlled. Changes in radon control and assessment should be discussed at HS Committees.