

## SOBRA SUBGROUP – GROUND GAS AND RADON WORKING GROUP

### TERMS OF REFERENCE

#### Membership

Greg Gibson (SoBRA Committee Sponsor)

Steve Wilson [stevewilson@epg-ltd.co.uk](mailto:stevewilson@epg-ltd.co.uk) (Ground gas Subgroup and Radon Working Group manager)

<p><b>Ground gas:</b></p> <p>Jenny Ford  Aleczaider Ovens  Simon Talbot  Dominic Young  Lois Ghost  Simon Burr  Leo Phillips  Barry Mitcheson  Brendan Marrinan  Fiona Goode  Nicola Reid  Ben Greenfield  Jordan Swales  Corinne Burrows  Mike Plimmer  Matt Lennard  Catherine Copping  Damian Watkin  Andy Fellows  Jon Raven  Duncan Grew  Andrew Brunton  Rachael Tempest  Greg Gibson  Victor Ojambati  Stacey McKenna  Keisha Smith</p>	<p><b>Radon Working Group:</b></p> <p>Simon Burr  Matt Lennard  Damian Watkin  Andrew Brunton  Keisha Smith  Robert Tyler  Lewis Miffing</p>
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## GROUND GAS SUBGROUP

#### Details of the initiative

Ground gas: The focus of the group will be to improve the quality of ground gas risk assessments delivered by the industry. Currently many assessors only consider gas monitoring results with little attention given to other equally important data. The group intends to produce one document at a time on discrete issues relating to ground gas.

The group should promote SoBRA and the risk assessors accreditation scheme.

#### General Aims

The purpose of the Ground gas subgroup will be to

- To support technical excellence in the assessment, estimation & evaluation of risks associated with ground gas.
- To encourage best practice by delivering practical advice to support decisions regarding the appropriate management of ground gas risks;
- To develop guidance in a timely manner;
- To periodically represent SoBRA at conference in respect to the sharing of learning outcomes;
- To mentor and support one another.

The above are considered to align with the SoBRA core objectives:

- To encourage “good practice” in the practical applications of risk assessment to support decisions regarding the appropriate management of land contamination.
- To facilitate and widen access to the dissemination of knowledge regarding land contamination risk assessment.

### Resource Expectations

All Members are anticipated to attend a minimum of 3 calls per year. Resource expectations will vary by individual and with delivery expectations. It is anticipated that 3-4 hours on average per month should suffice.

### Proposed method(s) of working

1. Meetings (virtual) 3 times per year to discuss ongoing work item and future work items
2. Group members contribute to and review the outputs.

### Expected timescales

Target dates for completion will be established for each item.

### Outputs (revised October 2023)

Completed, in progress and new outputs are listed below (note that several of the items from previous ToR were incorporated into the top tips document:

Output	Comments/details
1. Hazardous Ground Gas Top Tips (this document covers many of the suggested output for the sub-group in V2 ToR dated 15/09/2020.	Completed and published on SoBRA website
2. Advice sheet on how to calculate gas mass flux rates	In final draft stages, following which it will be finalised and shared with the Executive Committee for approval and publication edits
3. Advice on ground gas and engineered fills	<b>New work item</b> Advice on how to manage the gas potential of fills placed as an engineering material and subsequent potential risk to developments. Advice to avoid post-filling gas monitoring Advice on when it is not appropriate to gas monitor prior to earthworks (if material is to be removed).

# **RADON WORKING GROUP (ESTABLISHED OCTOBER 2023)**

## **Details of the initiative**

Radon is a gas in the ground and the migration mechanisms into building are the same as for other ground gas and VOCs. The focus of the group will be to investigate whether an in-ground radon monitoring and risk assessment approach could be taken when considering the risk posed by radon in new developments, in the same way as used for ground gas and VOCs.

At the moment the most commonly used procedure for radon assessment is based on guidance provided by UKHSA / DLUHC, which solely comprises use of [Radon Affected Area maps](#), and documentation provided in BRE Report BR 211 (for new developments) and by UKradon (for guidance on how to assess risks in existing dwellings / extensions). The radon maps use historic data from measurements of radon in homes, although are updated periodically as new data is collected, and in general do not account for the inherent radon resistance that may be present in new build construction, therefore potentially reducing radon levels in such buildings.

Some geo-environmental consultants have successfully used in-ground radon monitoring and a risk assessment approach to assess the radon risk on a few sites and thereby inform the level of radon protection required. This has been accepted by some Regulators.

The Working Group will look at the applicability of alternative modelling approaches to support assessment of commercial and residential buildings. The working group will also evaluate whether risk assessment could offer an alternative to the current procedure/s in relation to commercial and residential buildings. The Working Group will need to ensure that any proposed approach does not conflict with existing statutory requirements for radon assessment and mitigation.

## **General Aims**

The purpose of the Radon Working Group will be to:

- Carry out an initial literature review of practices in other countries. This will be split amongst the Working Group members based on geographical regions outside of the UK (see below). It is recognised that it may be difficult to access information from some regions with a strong track record in radon risk assessment (e.g. Scandinavia) because much of the documentation may not be in English;
- On completion of the literature review, produce information documents on alternative approaches to radon risk assessment that may be suitable for use in the UK (taking account of geology, building practice, etc). These would be intended to promote discussion on alternative approaches (noting whether they could be utilised in the UK within UK guidance and legislation, changes to which are outside the scope of any SoBRA publication) with the aim of informing debate about the benefits and practicalities of changes to current practices for identifying developments where radon protection is required;
- To develop publications related to the above in a timely manner;
- To periodically represent SoBRA at conference in respect to the sharing of learning outcomes, with the prior agreement of the SoBRA Executive Committee;
- To mentor and support one another.

The above are considered to align with the following SoBRA core objectives:

- To encourage “good practice” in the practical applications of risk assessment to support decisions regarding the appropriate management of land contamination. Although radon is a natural contaminant it is frequently included in geo-environmental risk assessment reports and so this work is considered to be relevant to SoBRA members.
- To facilitate and widen access to the dissemination of knowledge regarding land contamination risk assessment.

## **Resource Expectations**

All Members are expected to contribute to the literature review and other associated documents.

## Proposed outputs (October 2023)

The following outputs are proposed, but have not (October 2023) been prioritised.

Suggested output	Comments/details
Literature review of worldwide practices in radon risk assessment and requirements for radon protection in new buildings	<p>Obtain details of how radon risk and requirements for radon protection in new build developments are assessed in other countries.</p> <p>The following geographical regions will be considered (to be refined in initial stages based on WHO documents):            European Union (to be split amongst group members)            Switzerland            Ireland            Scandinavia            Australia/NZ            Middle east            North America            South America            Africa            China            Russia            Far East</p>
Present options for screening out low risk sites so that continued internal monitoring might not be necessary	It may be possible to screen out low risk sites where the risk of radon ingress is acceptably low (e.g. a new basement in London Clay with waterproof concrete and waterproof membrane)? (Technical guidance only)
Report on the different methods for measuring radon in soils	<p>Is it possible to reliably measure in-ground radon concentrations for risk assessment for new developments?</p> <p>Methods of monitoring            Boreholes and soil vapour implants            Collecting robust data</p>
Risk assessment methods for radon	<p>Evaluate potential risk assessment methods for all new developments to identify the appropriate level of radon protection required</p> <p>Consider the importance of geology and building construction in any such risk assessment</p> <p>Consideration of how to account for radon release from building materials, or why these won't materially affect the assessment</p>
Radon facts	Useful facts about radon that relate to radon risk assessment will be incorporated into the relevant sections of other outputs.

## GENERAL

### Liaison with Executive Committee

1. Steve Wilson to update EC in advance of quarterly EC meetings

### Liaison with CL:AIRE, UKHSA, and others

Steve Wilson (or the SoBRA Chair) to update Nicola Harries at National Brownfield Forum meetings, before deliverables are published and to engage with CL:AIRE as appropriate.

The proposed Radon Working Group outputs are intended to promote discussion about alternative approaches to identifying the need for radon protection measures in new buildings (including basements). Liaison with UKHSA and others (e.g BRE) may be appropriate following the publication of one or more of the outputs above. Any such liaison with stakeholders will be led by the SoBRA Chair, or a representative as agreed by the SoBRA Executive Committee.

Liaison with other stakeholders as necessary. Note: These discussions to be led by SoBRA Chair.

### **Data Storage**

The subgroup is to maintain its own secure repository for the sharing of data (e.g. a Dropbox account). The Sponsor will annually transfer its contents to the SoBRA Dropbox that acts as a central repository of all Society-related efforts and communications.

By reminder, everyone who works for or volunteers with SoBRA has some responsibility for ensuring personal data is collected, stored and handled appropriately. Each member that handles personal data must ensure that it is handled and processed in line with this policy and data protection principles. When data is stored electronically, it must be protected from unauthorised access, accidental deletion and malicious hacking attempts as per the requirements of our privacy policy.