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# SoBRA Register of Risk Assessors

Assessment Framework and Guidance

2018

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## Contents

1	Introduction.....	4
2	Relationship to Other Schemes.....	4
3	Description of the Registration Scheme.....	5
3.1	Registration Grades.....	5
3.1.1	Registered Risk Assessor (RSoBRA).....	5
3.1.2	Accredited Risk Assessor (ASoBRA).....	5
3.2	Registration Practice Areas.....	5
3.3	Application Procedure.....	6
3.4	Award.....	6
3.5	Fees and refunds.....	7
4	Registration Requirements.....	7
4.1	Summary of Registration Requirements.....	7
4.2	Professional Membership.....	7
4.3	Chartered Status.....	8
4.4	Applications from non-Chartered Professionals.....	8
4.5	Technical Skills.....	8
4.5.1	All Registrants.....	8
4.5.2	Accredited Risk Assessor Grade.....	9
5	Application Guidance and Procedure.....	9
5.1	Application Guidance.....	9
5.1.1	Summary of Application Requirements.....	9
5.1.2	CV and Supporting Evidence.....	10
5.1.3	Referee Statements.....	10
5.1.4	Continuing Professional Development.....	11
5.2	Application Procedure.....	11
5.2.1	Reviewing the application.....	11
5.2.2	Interview.....	12
5.2.3	Decision and Validation.....	12
6	Maintaining Registration and Revalidation.....	12
6.1	Maintaining Registration.....	12
6.2	Revalidation Registration.....	12
	Appendix A – Application & Assessment Process.....	14
	Appendix B – Detailed Guidance on Skills Criteria.....	15

## 1 Introduction

The ability to demonstrate that you are competent in your field of work is important to us all. With the field of land contamination management being so varied there are many different routes that practitioners may follow into the sector, such as geology, chemistry, engineering and environmental science. Risk assessment is a critical element in the evaluation of land affected by contamination and provides the cornerstone for wider decision making in the management of contaminated sites. Most private-sector organisations recognise the unique discipline of land contamination risk assessment within their teams; however, to date there has been no single industry-wide scheme to demonstrate competence as a risk assessor.

The Society of Brownfield Risk Assessment (SoBRA) has developed this registration scheme in order to recognise and reward the technical skills associated with land contamination risk assessment. Other schemes exist for recognising other skills required for the management of land affected by contamination, which can be numerous and multi-disciplinary. The SoBRA scheme does not demonstrate that an individual is an *expert* but it shows that the individual possesses the critical technical, scientific and communications skills required to design, perform and/or critically evaluate land contamination risk assessments. The scheme is focussed on the *technical detail* associated with such risk assessment but also requires that applicants have a broader understanding of the context and impact of risk assessment on the management of land affected by contamination.

For the purposes of this scheme, the definitions and descriptions of risk assessment provided in Section 3 of the Part 2A Statutory Guidance<sup>1</sup>, Chapter 2 of the “Model Procedures for the Management of Land Contamination (CLR 11)”<sup>2</sup> and Phases 1 and 2 of the jointly published “Guidance for the Safe Development of Housing on Land Affected by Contamination”<sup>3</sup> are considered to be the most relevant. It should be noted that these documents make it clear that an assessor must consider all of the available information relating to a site when making an assessment, and not just restrict their view to already-collected chemical data. In this respect, a site’s history can be important, for example, as can the sampling strategy and laboratory analyses that were employed and any qualitative information obtained during fieldwork.

## 2 Relationship to Other Schemes

The SoBRA Register of Risk Assessors is a standalone scheme. However, the scheme presents an opportunity for its members to demonstrate to a Suitably Qualified Person (SQP), under the Land Forums National Quality Mark Scheme, that they are sufficiently competent to support the SQP in undertaking or reviewing the risk assessment element of their project.

The SoBRA scheme has been developed with two grades in order to meet the needs of the industry. In very broad terms the two grades have been designed to be consistent with the Level 3 and Level 4 of the SiLC Land Condition Skills Framework.

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<sup>1</sup> Defra, 2012. Contaminated Land Statutory Guidance. April 2012. HM Government.

<sup>2</sup> Environment Agency, 2004. Model Procedures for the Management of Land Contamination

<sup>3</sup> NHBC, EA and CIEH, 2008. Guidance for the Safe Development of Housing on Land Affected by Contamination. R&D Publication 66

## 3 Description of the Registration Scheme

### 3.1 Registration Grades

The two grades of registration are:

- Registered Risk Assessor (RSoBRA)
- Accredited Risk Assessor (ASoBRA)

A brief description of each grade is provided below.

#### 3.1.1 Registered Risk Assessor (RSoBRA)

A person who is a *Registered Risk Assessor* is someone who is capable of undertaking and/or reviewing routine risk assessments without supervision. More complex risk assessment situations are likely to require research and/or guidance from a more senior risk assessor.

A list of the attributes required is provided in Section 4.5.1 and further, detailed guidance on the skills required is provided in the Core Level Skills in Appendix B.

A *Registered Risk Assessor* is likely to meet the definition of “competent person” under the National Planning Policy Framework (NPPF 2012) in relation to Generic Quantitative Risk Assessment (GQRA). It is also envisaged that a *Registered Risk Assessor* would be able to support a SQP under the Land Forum’s National Quality Mark Scheme, by undertaking or reviewing GQRAs.

If successful, an applicant would be able to use RSoBRA as a post-nominal.

#### 3.1.2 Accredited Risk Assessor (ASoBRA)

A person assessed to be an *Accredited Risk Assessor* is someone with a thorough understanding of land contamination risk assessment, with experience of carrying out and/or reviewing both GQRA and Detailed Quantitative Risk Assessments (DQRA). They are likely to be either (a) senior staff who supervise others and review risk assessment reports, as well as having experience of performing risk assessments themselves or contributing to the development of risk assessment best practice; (b) or senior regulators or others with in-depth experience of providing detailed technical review of reports which rely on the appropriate use of derived site specific assessment criteria (SSAC), presented alongside a DQRA.

A list of the attributes required is provided in section 4.5.2 and further, detailed guidance on the skills required is provided in the Accredited Level Skills in Appendix B. It is noted that the attributes listed in Section 4.5.1 and the Core levels Skills provided in Appendix B are relevant to all applicants.

It is also envisaged that an *Accredited Risk Assessor* would be able to support a SQP under the Land Forum’s National Quality Mark Scheme, by undertaking or reviewing both GQRAs and DQRAs.

If successful an applicant would be able to use ASoBRA as a post-nominal.

### 3.2 Registration Practice Areas

SoBRA recognise that many practitioners, particularly those in smaller organisations, may perform risk assessments to a competent or higher standard across a variety of practice areas such as human health and hydrogeology. Others may specialise in one or more specific areas of land contamination risk assessment.

SoBRA can assess risk assessors in the following four practice areas:

- |   |   |
|---|---|
| <input type="checkbox"/> Human Health                   | <input type="checkbox"/> Vapour Intrusion |
| <input type="checkbox"/> Controlled Waters <sup>4</sup> | <input type="checkbox"/> Permanent Gases  |

Applicants may apply for a maximum of two practice areas per application window. There will be some overlap between practice areas, for example, those specialising in vapour intrusion risk are also likely to have a good understanding of human health risk assessment. Applicants should indicate the practice areas for which they seek recognition (this is done on the application form) and should ensure that the supporting evidence provides sufficient detail in relation to each of those fields. It is possible to seek SoBRA accreditation across both grades for different practice areas. If doing so, please apply for the ASOBRA grade and indicate which practice areas you are seeking recognition for, and at what grade. It will be necessary to demonstrate evidence of competence, consistent with the grade of registration, for all practice areas indicated on your application form.

Entries on the register will include both the grade of registration and the practice areas that apply.

### 3.3 Application Procedure

The application procedure involves a written submission, payment of fee and interview as outlined in appendix A. Further details are provided in section 5.

The scheme will be guided by the Executive Committee sponsor. SoBRA will appoint an administration assistant who will coordinate the applications and subsequent correspondence during the application window. All decisions will be made by the Executive Committee sponsor, or delegate, not by the administration team. The administration assistant will support in communicating the decisions via the SoBRA accreditation inbox as soon as practicable.

### 3.4 Award

On admission to the register, applicants will be invited to use the post-nominal signature designations as follows:

- Those admitted as ‘Registered Risk Assessor’ - **RSoBRA**
- Those admitted as ‘Accredited Risk Assessor’ - **ASOBRA**

Successful applicants are encouraged to indicate their practice areas behind their post-nominals, such as ASOBRA (gas, water, vapour, health). This will be left to the discretion of the applicant. SoBRA also encourages successful applicants to include the following statement within reports and documents for which they have had a personal involvement:

*[‘Applicant Name’ is a(n) REGISTERED / ACCREDITED Risk Assessor with the Society of Brownfield Risk Assessment (SoBRA). ‘Applicant Name’ has successfully demonstrated to SoBRA, through provision of evidence and peer-scrutiny, that they have the necessary skills and knowledge to perform and critically evaluate GENERIC/GENERIC AND DETAILED Quantitative Land Contamination Risk Assessments in the following practice areas: HUMAN HEALTH RISK/VAPOUR INTRUSION RISK/CONTROLLED WATERS*

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<sup>4</sup> In Scotland, “Water Environment” is the legal term. The term “Controlled Waters” is used in England, Wales and Northern Ireland.

*RISK/PERMANENT GROUND GAS RISK. Confirmation of registration can be found on the SoBRA website at [www.sobra.org.uk](http://www.sobra.org.uk).] (delete non-applicable uppercase sections as appropriate)*

### 3.5 Fees and refunds

There are two fees involved in the registration scheme:

- An application fee which is required to cover the costs of administration and the review of applications. This fee applies for each application including where previous applications had been refused or deferred. As a not-for-profit organisation, SoBRA aims to ensure this fee reflects only necessary expenses involved in the administration and review of applications.
- An annual register maintenance fee which is required to cover continual scheme administration costs – this also includes annual SoBRA membership.

**Refund Policy:** As the application fees are to cover administration and scrutineer costs, SoBRA will refund 25% of your fee should your application not proceed to interview stage.

The latest fees can be found on the SoBRA website [www.sobra.org.uk](http://www.sobra.org.uk)

## 4 Registration Requirements

### 4.1 Summary of Registration Requirements

In order to be considered for registration, applicants will be required to be a member of SoBRA, observing the provisions of the SoBRA Code of Professional Conduct which can be found on the SoBRA website. They must also demonstrate an appropriate level of technical skills as detailed in Appendix B. In addition, professional membership and chartership is required as outlined in Table 1.

**Table 1.** Summary of Registration Requirements

	Registration Prerequisites	Technical Skills Summary
Registered Risk Assessor (RSoBRA)	Membership of relevant professional body is desirable but not essential.	Core skills – broadly consistent with those practicing to GQRA <sup>5</sup>
Accredited Risk Assessor (ASoBRA)	1. Membership and Chartered status with relevant professional body; <u>or</u> in exceptional circumstances 2. Significant experience in field of expertise AND membership of a relevant professional body.	As for RSoBRA plus skills consistent with those practicing/ technically reviewing DQRA <sup>6</sup>

FAQs about the registration scheme can be found on the SoBRA website and some more detailed guidance is provided below.

### 4.2 Professional Membership

Professional membership is valued by SoBRA as it shows a commitment to career development and skill building whilst binding members to the codes of ethics and professional standards of the institution of which they are a member. Professional membership is therefore desirable but not essential for the award of

<sup>5</sup> Generic Quantitative Risk Assessment (see the above-referenced documents for a description of GQRA).

<sup>6</sup> Detailed Quantitative Risk Assessment (see the above-referenced documents for a description of DQRA).

Registered Risk Assessor (RSoBRA) but is mandatory for the award of Accredited Risk Assessor (ASoBRA). Professional membership should be relevant to the processes involved in land contamination risk assessment and may include institutions out with the UK.

### 4.3 Chartered Status

As well as having professional membership, applicants seeking to obtain registration as an *Accredited Risk Assessor* will normally need to have achieved chartered status. Chartership should be through an institution that is relevant to the processes involved in land contamination risk assessment.

### 4.4 Applications from non-Chartered Professionals

In exceptional circumstances, it is possible to apply for the *Accredited Risk Assessor* grade without the prerequisite chartership. Applicants applying to become an *Accredited Risk Assessor* through this pathway will need to demonstrate they have significant relevant experience of land contamination risk assessment within their practice areas as follows:

- Demonstrate professional membership (consistent with all applicants for the ASoBRA grade);
- Demonstrate CPD commitment using your own recording system (or that of your professional body) and show your commitment to CPD - this is normally a core requirement of chartership awarding bodies and so you must show a comparable level of commitment;
- Provide a personal statement summarising why you feel your experience is relevant; and
- Prepare a short introductory presentation to be delivered at interview, which explains why you are an applicant with significant experience and to initiate discussion with the SoBRA scrutineers.

These requirements are in addition to those required via the chartered pathway.

### 4.5 Technical Skills

Applicants will be assessed on their level of attainment of the skills criteria outlined below. Detailed guidance is also given in Appendix B.

#### 4.5.1 All Registrants

All registrants are expected to be able to demonstrate the following core skills to the reasonable satisfaction of a constituted SoBRA Assessment Panel – these skills should be demonstrated in relation to your practice areas:

- R1. Adequate understanding of the relationship between the information retrieved as part of a desk study, site visit and walkover, and a preliminary risk assessment / site investigation design.
- R2. Ability to undertake a preliminary risk assessment, involving the evaluation of potential contaminants, pathways and receptors, and the identification of potential contaminant linkages, to include the development of an 'Initial Conceptual Site Model`.
- R3. Adequate understanding of the data requirements from the site investigation stage in order to undertake generic quantitative risk assessments (GQRA); and ability to work with /advise site investigation engineers at the scoping and design stage to ensure data collection is appropriate and adequate for risk assessment purposes.
- R4. Ability to check and analyse site investigation and other data relevant to a GQRA.
- R5. Ability to demonstrate familiarity with risk assessment approaches, techniques, models and processes and appropriate input parameters for the production of generic assessment criteria (GACs).
- R6. Ability to undertake GQRA, including development of a Conceptual Site Model, selection and application of appropriate GACs relevant to your practice area(s).
- R7. Ability to make recommendations based on the outcomes of a GQRA.
- R8. Ability to communicate risk in an effective way to non-technical interested parties.



R9. Adequate level of awareness and understanding of the other areas of risk assessment that may not be features of the candidate's particular area of expertise, including their interactions.

Further detailed guidance, including examples of the type of information which can be used to demonstrate these attributes, is included in Appendix B.

#### 4.5.2 Accredited Risk Assessor Grade

All candidates seeking to become an *Accredited Risk Assessor* should also demonstrate to the reasonable satisfaction of a constituted SoBRA Assessment Panel the following specialist skills, in relation to their practice areas:

- A1. Ability to undertake a detailed quantitative risk assessment (DQRA).
- A2. Adequate understanding of the data requirements from a site investigation in order to undertake a DQRA.
- A3. Ability to derive site-specific assessment criteria (SSACs) or GACs from first principles using peer reviewed literature sources.
- A4. Demonstrate an understanding of the use of *Risk Evaluation* in the risk assessment process to help define assessment limitations and recommendations.
- A5. Ability to select appropriate methods/tools to undertake the DQRA and to understand and describe the limitations and basic assumptions of these.
- A6. Adequate level of awareness of the role and management of uncertainty in risk assessments including demonstrable understanding of the role of sensitivity and uncertainty analysis.
- A7. Adequate level of understanding of the way time impacts risk.
- A8. Adequate level of understanding of the legal, technical, social and environmental contexts of land contamination risk assessment.
- A9. Adequate level of understanding of the legislative regime pertinent to risk assessment within the country of work.

Further detailed guidance, including examples of the type of information which can be used to demonstrate these attributes, is included in Appendix B.

## 5 Application Guidance and Procedure

### 5.1 Application Guidance

#### 5.1.1 Summary of Application Requirements

Once the application fee has been paid the applicant is required to submit the following electronically to the Scheme Administrator for assessment by two SoBRA appointed Scrutineers:

- Application Form
- Proof of Professional Membership (where relevant for RSoBRA, mandatory for ASoBRA)
- Proof of Chartership or other evidence as outlined in section 4.4 (ASoBRA Grade only)
- 2 page Curriculum Vitae
- Professional Report
- Referee statements
- CPD record (last 3 years)

Further guidance on what to include is provided in the following sections.

### 5.1.2 CV and Supporting Evidence

Applicants are asked to apply online via the SoBRA website. Applicants will need to submit a concise (2-page) CV which provides a summary of their qualifications and career experience relevant to the skills criteria. The application should also include a Professional Report, which demonstrates how you meet the skills criteria (R1-R9, A1-A9), relevant to the tier of your application.

- The CV should include a list of qualifications gained from A-level stage (or equivalent) onwards, membership details of professional bodies, a brief description of career development and relevant project experience, area(s) of expertise and a summary of any relevant courses/training events.
- The Professional Report should be no more than 2,500 words and should include descriptions of relevant projects with a clear explanation of your involvement and role within each of those projects (which may include as a reviewer, including in a regulatory capacity) and how this relates to the various skills criteria. The Professional Report should also include reference to any non-project work in which you have developed or demonstrated relevant risk assessment skills and knowledge. You should ensure that the report provides a fair representation of your competence in the skills criteria *for each of the practice areas* for which you are claiming competence. Note that you do not need to discuss each skills criteria in turn, those skills criteria that relate to each piece of evidence can be indicated in brackets e.g. “I worked on Project X that involved .....(R4, R6)”.
- The Professional Report must be countersigned in the margin (see Section 5.1.3) with wet signatures in multiple places to verify skills/experience, and scanned copies should be provided as part of the application.

The Professional Report form (DOC3) should be used to record your summary statements – the form can be downloaded from the SoBRA website [www.sobra.org.uk](http://www.sobra.org.uk)

### 5.1.3 Referee Statements

A Referee is required to declare that the candidate meets the skills criteria and that the candidate has provided a true description of their own involvement in experience cited. In most instances it is not possible for Scrutineers (volunteers) to be able to gain a detailed understanding of all the candidate’s experiences from the information provided in the time available and thus are relying on the Referee’s opinion.

It is important to ensure that candidate’s referees are able to verify the Professional Report for the period over which they have knowledge of the candidate’s work. The Professional Report should be signed by at least two professional referees in the column to the side at **each instance** where they are verifying the experiences (for example, per paragraph) in blue or black ink. Both the name of the professional referee and the signature are required. Electronic signatures will not be accepted and the candidate is urged to allow sufficient time to obtain relevant signatures and scan signed documents, as this can be time consuming. The candidate is advised to submit one copy of the Professional Report containing all signatures to aid the document management system embedded in the website and Scrutineer review.

Each referee must additionally confirm their status and sign a statement in the application form that they confirm to the best of their knowledge that the candidate’s Professional Report is a true reflection of their career. This should be recorded by **each** professional referee in a **separate** Referee Form (DOC4) – the form can be downloaded from the SoBRA website [www.sobra.org.uk](http://www.sobra.org.uk). The referees should state their relationship to the applicant and confirm how long they have had a professional relationship with the applicant.

The referees should be of good standing, preferably professionally qualified (chartered or equivalent) and may include:

- Peers and managers from your current or previous employer;
- Senior peers within other organisations who have first-hand knowledge of your work;

- Clients (provided they themselves have first-hand knowledge of your work); and
- Local authority, Environment Agency or other relevant regulators with knowledge of your work.

Without signatures within the Professional Report, an application cannot be progressed.

#### 5.1.4 Continuing Professional Development

As part of your assessment you will be assessed on your commitment to CPD. This can be demonstrated by regular use of planning and recording documents such as those provided by the professional institution with which you are a member/chartered. The applicant should submit three years' worth of CPD logs with their application.

It is expected that CPD will be well balanced reflecting the broad range of skills required for practitioners in the field of contaminated site management. However, there is expected to be a demonstrable emphasis on risk assessment and directly related skills development. It is expected that your CPD records will include evidence of attaining and understanding knowledge of new or emerging information relevant to land contamination risk assessment. It is also expected that your CPD will reflect the practice areas for which you are applying for registration.

It is important to note that CPD does not solely include formal training or attendance at conferences and events. CPD can be gained by working on a SoBRA subgroup, attending forum meetings, writing articles for newsletters, undertaking research for a project you are working on, developing innovative working practices, reading research relevant to your field, or mentoring less experienced colleagues.

Once a member is registered they will need to reconfirm their status every 3 years in order to maintain their registration (See Section 6).

## 5.2 Application Procedure

A brief account of the application procedure is provided in the following sections which should be read in conjunction with Appendix A. The application procedure is a two stage process; written submission and then interview. Further detail on the scrutineering process can be found on the SoBRA website.

### 5.2.1 Reviewing the application

Once the application has been submitted, the application process detailed in Appendix A will be followed.

Once the Scrutineers have been identified and potential conflicts of interest addressed, they will then assess the applications that they have been assigned. The Scrutineers will then decide on one or more of the following actions:

- Recommend that the Applicant goes for interview and make the necessary arrangements for the interview to take place;
- Recommend that the Applicant proceeds to interview, but at a lower grade of registration than that applied for (in the practice areas where the evidence has been assessed as insufficient for ASoBRA but sufficient for RSoBRA);
- Recommend that the entire application in its current form is deferred giving reasons for why this is the case. The Applicant would then be given advice on how to strengthen their future application (e.g. by gaining more experience/knowledge in specific skill areas).

### 5.2.2 Interview

All applicants who have provided the required written submissions shall be asked to attend an interview with the 2 Scrutineers who have reviewed the application. Interviews will typically take 1 hour, depending on the strength of the application. Interviews may include specific questions on aspects of the Professional Report provided with the application, together with general questions aimed at giving the applicant an opportunity to demonstrate competence, which may not have been fully reflected in the initial application documents. The applicant may also be asked to prepare and present a short presentation at the discretion of the Scrutineers.

It is envisaged that one of the Scrutineers would have an in-depth understanding of the applicant's practice area(s) as indicated in the application form.

At the discretion of the Scrutineers, the applicant may be given a final opportunity to supply, within an agreed timescale, additional evidence or information as identified during the interview. The final decision will be made once this information has been assessed by the Scrutineers.

### 5.2.3 Decision and Validation

Following the completion of the interview process, the Assessment Panel will prepare a report and make a recommendation to the SoBRA Executive Committee who will validate the decision and subsequently inform the applicant in writing. The outcome of the assessment process will be either successful registration or deferral. Applicants can appeal a decision as described in the SoBRA Complaints and Appeals Policy which is available on the website. Decisions to defer will include feedback on the areas where the applicant would need to provide additional evidence to enable a successful application in the future.

## 6 Maintaining Registration and Revalidation

### 6.1 Maintaining Registration

In order to remain on the register, the RSoBRA/ASoBRA must:

- Retain a relevant professional membership (where relevant);
- Demonstrate a commitment to CPD, particularly in relation to land contamination risk assessment;
- Pay the annual register maintenance fee (which includes SoBRA membership subscription); and
- For *ASoBRA* only: retain chartered status of the professional body indicated in your application.

In the event that the annual register maintenance fee has not been paid by the due date, SoBRA reserves the right to take the following actions:

- After two months overdue - suspension of registration, marked as 'suspended' on register.
- Over six months overdue – revocation of registration (including use of post-nominals) and removal from the register. Re-entry to the register would only be possible by new application.

### 6.2 Revalidation Registration

Registration is valid for a period of three years, after which time those registered will be asked to submit the following, in order to demonstrate that they have maintained their skills:

- Revalidation form <sup>7</sup>
- CPD record
- Current CV – reflecting the period since registration
- Revalidation fee

For revalidation registrants submissions will be reviewed by a panel of Scrutineers constituted by SoBRA. Whilst further assessment is not anticipated, SoBRA reserves the right to call registrants for interview in such circumstances.

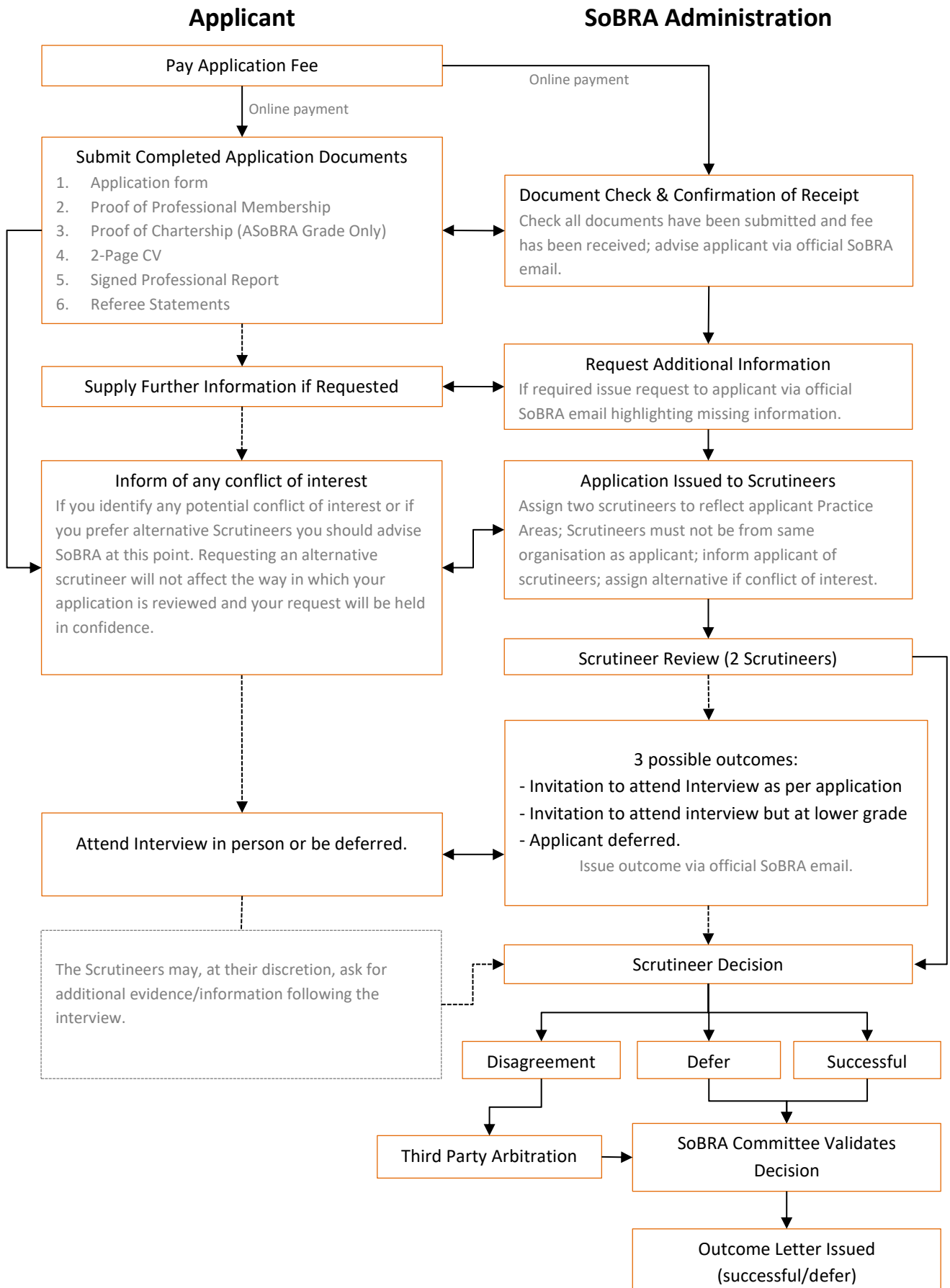
Where a member has failed to revalidate their registration by the required date, SoBRA reserved the right to take the following actions:

- After three months overdue – suspension of registration, marked as ‘suspended’ on register.
- Over 12 months overdue - revocation of registration (including use of post-nominals) and removal from the register. Re-entry to the register would only be possible by new application.

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<sup>7</sup> This will include a short statement (no more than 250 words) of your activities over the interim period outlining your development in and contribution to the field of land contamination risk assessment. The statement should be signed by a referee who can verify your experience over this period.

## Appendix A – Application & Assessment Process



## Appendix B – Detailed Guidance on Skills Criteria

### Core Level Skills Applicable to All Registrants

<b>R1</b>	<b>Desk Study, Site Visit / Walkover</b> Evidence that the applicant understands what information should be obtained as part of a desk study, for risk assessment purposes, and where to get it. Also, evidence that the applicant knows what to focus on during a site visit /walkover and how to obtain / identify relevant information.
<b>R2</b>	<b>Preliminary Risk Assessment</b> Evidence that the applicant can use information obtained from a desk study, site visit and walkover to develop an understanding of potential contaminant-pathway-receptor relationships, and present it in the form of a preliminary risk assessment.
<b>R3</b>	<b>Data Requirements - GQRA</b> Evidence that the applicant understands site investigation data requirements and has the skills to establish a specification for obtaining the data required to perform a land contamination risk assessment with an appropriate level of detail (e.g. groundwater elevations, gas flow data, soil organic matter content, in-situ tests, natural attenuation parameters, soil vapour concentrations, organic carbon content, hydraulic conductivity). These skills could be demonstrated by reference to projects where critical review has been required, as well as by performance. The applicant would need to show why this data was required for the assessment at the relevant level of registration.
<b>R4</b>	<b>Ability to Retrieve, Check and Analyse Relevant Data</b> Evidence that the applicant knows how to retrieve/analyse data relevant to a quantitative risk assessment (e.g. site-related chemical data, meteorological data) and understands how to evaluate its accuracy and usefulness for inclusion (e.g. identifying unreliable data in an existing data-set). The applicant must demonstrate knowledge of appropriate statistical assessment and recognise any limitations of the chosen methodology when making conclusions.
<b>R5</b>	<b>Familiarity With Risk Assessment Approaches</b> Evidence that the applicant is familiar with land contamination risk assessment approaches, including, but not limited to, those identified in relevant UK guidance (e.g. CLR 11 - Model Procedures). An understanding of the applicability, or otherwise, of the various approaches in specific regulatory settings is also required.
<b>R6</b>	<b>Ability to Undertake a GQRA Using Appropriate GACs</b> Evidence that the applicant has the skills to select appropriate GACs and apply them properly (including using statistical analysis) during the interpretation of site-specific data, as part of a GQRA.
<b>R7</b>	<b>Ability to Make Recommendations Based on a GQRA</b> Evidence that the applicant understands what the results of a GQRA can and cannot reveal about a site and how to draw conclusions and recommendations accordingly.
<b>R8</b>	<b>Ability to Communicate the Process and Outcome of Risk Assessment to a Non-Technical Audience</b> Evidence that the applicant can communicate with a non-technical audience, both verbally and in writing, the process and outcome of a land contamination risk assessment.
<b>R9</b>	<b>Understanding of Other Specialisms</b> Evidence that the applicant understands the limitations of their own expertise and when that of other specialisms is required.

### Additional Skills Required for Accredited Risk Assessor Grade

<b>A1</b>	<b>Ability to Undertake a DQRA</b> Evidence that the applicant understands the role and purpose of a DQRA and the range of options available to the assessor. These could include the collection of additional soil data, the sampling and analysis of environmental exposure media, changes to the exposure model, the collection and use of bioaccessibility measurements and human bio-monitoring. The strengths and weaknesses of each option should be understood, as should their applicability and limitations.
<b>A2</b>	<b>Site-Specific Assessment Criteria (SSACs)</b> Evidence that the applicant has either derived their own assessment criteria using industry-standard models and approaches or has provided technical review of such criteria, either as a senior/peer reviewer, or in a regulatory capacity. Literature sources refers to the need for physico-chemical and

	toxicological (e.g. health criteria values) for contaminants. For hydrogeological risk assessment, it would be expected that site-specific hydrogeological data has been obtained; and that the applicant has an understanding of how to use this information in analytical fate and transport software <i>for example</i> using the EA's RTM Workbook or the ConSim model. For ground gas assessments, it would be expected that site specific geotechnical and soil data has been obtained to enable the use of gas generation modelling either via models such as GasSim or by calculations in accordance with appropriate guidance such as the EA's Guidance on the Management of Landfill Gas.
<b>A3</b>	<b>Data Requirements – DQRA</b> Evidence that the applicant understands site investigation data requirements and can establish/advise on a specification for obtaining the data required to perform a land contamination risk assessment with an appropriate level of detail (e.g. natural attenuation parameters, soil vapour concentrations, organic carbon content, hydraulic conductivity, soil geotechnical parameters). The applicant would need to show why this data was required for the assessment at the relevant level of registration.
<b>A4</b>	<b>Use of Risk Evaluation</b> Evidence that the applicant understands the role of the risk evaluation process, which follows risk estimation, and has used it as the basis of robust decision-making. This may include a regulator forming an opinion on the conclusions an applicant during the planning process, based on the modelling submitted. Knowledge of appropriate techniques and relevant guidance is required.
<b>A5</b>	<b>Understanding of Assumptions and Limitations</b> Evidence that the applicant understands the implicit and explicit assumptions within any land contamination risk assessment and the limitations inherent in the risk estimation process. Understanding of how this knowledge should be factored into decision-making.
<b>A6</b>	<b>Uncertainty and Sensitivity Analysis</b> Evidence that the applicant understands how uncertainty and sensitivity analyses can be used to help elucidate the uncertainty inherent within the risk estimation process. Understanding of the limitations of modelling methods and how an overall knowledge of uncertainty should be factored into decision-making.
<b>A7</b>	<b>Impact of Time</b> Evidence that the applicant is aware of how time affects risk assessment. The applicant must have an understanding of how the nature and extent of contamination can change over time <i>for example</i> through degradation, natural attenuation, natural source zone depletion, transportation.
<b>A8</b>	<b>Understanding of the Technical, Social and Environmental Context of Land Contamination Risk Assessment</b> Evidence that the applicant understands the concept of sustainable remediation and that all appropriate factors are considered prior to recommendations of risk mitigation/remediation.
<b>A9</b>	<b>Understanding of the Legislative Context</b> Evidence that the applicant has sufficient knowledge of the applicable technical guidance and legislation that apply to the management of land contamination in general and to their specific field of risk assessment. In addition, the applicant should be able to demonstrate how the various guidance and legislations interrelate and/or co-exist.