



APPENDIX D

QUALITATIVE RISK ASSESSMENT METHODOLOGY



Qualitative Risk Assessment Methodology

The approach adopted by Sirius for the qualitative assessment of risk is based upon that given in Annex 4 of NHBC-Environment Agency-CIEH “Guidance for the Safe Development of Housing on Land Affected by Contamination” (2008) and is consistent with other current guidance.

The risk posed by viable contaminant linkages is based upon the consideration of both:

- a) the magnitude of the potential consequence (i.e. its severity); and,
- b) the probability (likelihood) of that consequence being realised.

The classifications used in this report for consequence and probability are given in Tables 1 and 2, respectively. The derived risk classifications are defined in Table 3.

Where there is no viable contaminant linkage there is no potential risk.

Table 1. Classification of Consequence

Classification	Definition
Severe	<p>Contaminant concentrations at the receptor that are likely to result in “significant harm” to human health (as defined in Part 2A of the Environmental Protection Act 1990).</p> <p>Major pollution of controlled waters that could have persistent and/or extensive effects on water quality, for example fish kills, closure of an abstraction, or substantial deterioration in quality of the receiving water body.</p> <p>Major impact on receptor amenity value or major damage to agriculture or commerce.</p> <p>Major damage to an ecosystem that is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population.</p> <p>Catastrophic damage to crops, buildings or property.</p>
Medium	<p>Elevated concentrations at the receptor that might result in “significant harm” to human health (as defined in Part 2A of the Environmental Protection Act 1990).</p> <p>A pollution incident that has significant effect on water quality or abstraction potential.</p> <p>An incident that has a marked effect on receptor amenity value, agriculture or commerce.</p> <p>Damage to an ecosystem that may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population.</p> <p>Significant damage to crops, buildings or property.</p>



Classification	Definition
Mild	<p>Potential human health impact at the receptor point but unlikely to be classified as “significant harm” (as defined in Part 2A of the Environmental Protection Act 1990).</p> <p>Pollution of water that will have a small or short-lived effect on water quality and marginal effects on its amenity or resource value or its use in agriculture or commerce.</p> <p>Minor or short-lived damage to ecosystems, which is unlikely to result in a substantial adverse change</p> <p>Minor damage to crops, buildings or property</p>
Minor	<p>No potential measurable detrimental human health impacts at the receptor point.</p> <p>Impact on water that will have no or minimal effect on water quality or use.</p> <p>No or minor and easily repairable effects on buildings, structures and services.</p>

Table 2. Classification of Probability

Classification	Definition
High	An impact is already occurring or is very likely in the short-term and almost inevitable over the long-term.
Medium	It is probable that an event would occur. This is not inevitable but possible in the short-term and likely over the long-term.
Low	Circumstances are possible under which an event could occur. However, it is by no means certain that an event will take place, even over the long-term.
Unlikely	Circumstances are such that it is improbable that an event would occur even over the very long-term.

Table 3. Risk Classification

Probability	Consequence			
	<i>Severe</i>	<i>Medium</i>	<i>Mild</i>	<i>Minor</i>
High	Very High	High	Moderate	Low
Medium	High	Moderate	Low to Moderate	Low
Low	Moderate	Low to Moderate	Low	Very Low
Unlikely	Low to Moderate	Low	Very Low	Negligible



Table 4 provides a context for interpretation of the risk classification categories. The definitions provided are based on those given in CIRIA (2001) "Contaminated Land Risk Assessment. A Guide to Good Practice", Report C552.

Table 4. Interpretation of Risk Classification Categories

Risk Classification	Definition
Very High	There is a high probability that severe harm to one or more identified receptors could occur or there is evidence that this is already happening. This risk is likely to result in a substantial liability. Urgent investigation and remediation are likely to be required.
High	Harm is likely to be caused to one or more identified receptors. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short-term and are likely over the longer term.
Moderate	It is possible that harm could be caused to one or more identified receptors. However, it is relatively unlikely that such harm would be severe. Investigation is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could be caused to one or more identified receptors but it is likely that this harm, if realised, would normally be mild. No further investigation is considered necessary to assess risk or environmental liability but investigations could be undertaken if desired to confirm 'baseline' conditions for the purposes of liability management. Remedial works are unlikely to be required.
Very Low	There is a low probability that harm could be caused to one or more identified receptors. In the event of such harm being realised, it is likely to be mild, at worst. No further investigation is considered necessary to assess risk or environmental liability but investigations could be undertaken if desired to confirm 'baseline' conditions for the purposes of liability management. Remedial works are very unlikely to be required.
Negligible	It is unlikely that harm could be caused to one or more identified receptors. In the event of harm being realised, it is likely to be minor. No further investigation is considered necessary to assess risk or environmental liability. Remedial works are not expected.

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