

Appendix B-1: Guidance for CSAPs Conducting Review of Investigations Involving Soil Vapour Assessment^{1,2,3}

This guideline has been developed based upon Ministry regulations, procedures, policies and guidelines in effect at the time of their preparation. The Approved Professional should always refer to the ministries' current written protocols, guidance, etc. to identify if there are any new or additional requirements.

GENERAL TOPIC	Points of Review (Soil Vapour Investigations)	Reference ⁴
<p>PROBLEM DEFINITION PCOC's</p> <p><i>Conceptual Site Model</i></p> <p><i>Site Plans</i></p>	<ol style="list-style-type: none"> 1. Has the investigator confirmed that PCOC at the site include volatile or semi-volatile substances associated with CSR Schedule 2 activities and Schedule 11, and identified appropriate additional PCOC for soil vapour, in addition to those identified for other media? 2. Has the investigator described a Conceptual Site Model of vapour sources and pathways, including: <ol style="list-style-type: none"> a. identified the major hydrostratigraphic units relevant to the investigation (those units that contain Schedule 11 substances); b. provided a general interpretation of groundwater flow direction and gradients in those relevant units, and between them; c. discussed potential vapour migration related to and independent of groundwater flow direction (e.g., advective or diffusive mechanisms); and d. identified the presence or absence of potential receptor(s) for the soil vapour pathway(s) and made an assessment of potential preferential vapour pathway(s) between the source and on-site and off-site receptor(s)? 3. Has the investigator: <ol style="list-style-type: none"> a. provided a scaled site plan or plans showing existing or future (if available) buildings found on site; b. provided pertinent information regarding characteristics of the buildings found on and off site (e.g., slab-on-grade, depth of foundation, crawl spaces, positive or negative pressurization, installed vapour barriers, etc.), including rationale for any assumptions or default values used related to building characteristics (current or future); and c. included construction features (e.g., utility connections, basements, HVAC systems, sumps, etc.) associated with any buildings and rationale for any assumptions regarding construction features? 	<p>TG 4</p> <p>TG 4</p> <p>SAB</p>
<p><i>Climatic and Soil Cover Conditions</i></p>	<ol style="list-style-type: none"> 4. Has the investigator provided: <ol style="list-style-type: none"> a. a discussion of seasonal variations in precipitation and temperature as it relates to vapour migration; and b. precipitation data for all vapour sampling events and a period of 24 hours prior to the sampling event? 5. Has the investigator discussed or considered: <ol style="list-style-type: none"> a. temperature data for all vapour sampling events; b. soil stratigraphy of the vadose zone; c. surface cover; and d. ground conditions at time of vapour sampling (e.g., snow cover, frost, wet, etc.), wetting fronts and estimates of infiltration rates? 	<p>SAB</p>

GENERAL TOPIC	Points of Review (Soil Vapour Investigations)	Reference⁴
<i>Attenuation Factors</i>	14. Has the investigator used appropriate attenuation factors to assess and delineate indoor and/or outdoor vapour contamination, considering land use of the subject site and adjacent properties, and sampling depth?	TG 4
<i>REFERENCES</i>	15. Has the investigator referenced any soil vapour-specific references in addition to those required in the PSI/DSI?	
<i>APPENDICES</i>	16. Has the investigator provided: <ul style="list-style-type: none"> a. copies of analytical laboratory reports, in printed form for data used as part of the investigation and interpretation, b. copies of analytical laboratory reports from any historical data relied on⁵; c. copies of all soil vapour test hole logs for the investigation, including from any historical data relied on; d. reports of monitoring data collected from soil vapour probes; e. copies of all relevant reports (or pertinent sections) that have been relied on⁵? 	

Notes

EMA – Environmental Management Act
 CSR – Contaminated Sites Regulation
 FS – Fact Sheet, Ministry of Environment
 TG – Technical Guidance, Ministry of Environment
 AG – Administrative Guidance
 P – Protocol
 SoSC – Summary of Site Condition
 CSSAF – Contaminated Sites Service Application Form
 SAB - Science Advisory Board

¹ This guideline has been developed based upon Ministry regulations, procedures, policies and guidelines in effect at the time of their preparation. The Approved Professional should always check the ministries' website to identify if any new information is in effect.

² It is recommended that a SAP complete a supporting technical review summary document that provides their comments (agreement/concurrence/approval/disagreement) on all items listed in the above table, particularly when the submission deviates from standard ministry protocol or guidance or to acknowledge that items were reviewed/considered. The supporting document is not a requirement, but may be requested during a performance assessment.

³ This document inherently assumes that adequate site characterization of media other than soil vapour has been completed as part of the PSI and DSI, and that such information is included together with the soil vapour assessment information; otherwise, additional information must be included with the soil vapour assessment (Refer to Appendix B).

⁴ Supporting reference documentation to MoE Act, Regulation, Protocols, Guidance and/or other documents also provided for information only; this list of references may be incomplete or inaccurate.

⁵ Provision of these supporting documents can either be within the report appendices or as standalone separate documents listed in the SoSC, and referenced in the report