



The learning from three years of widescale CHC assessment

Andrew Pruszinski, Dale McGill, Shannon Thompson & Mitchell Talbot

Introduction

The Environment Protection Authority's (EPA) vision is to work towards a clean, healthy and valued environment that supports social and economic wellbeing for all South Australians now and into the future.

Like all industrialised cities, Adelaide and South Australian regional centres have contaminated sites that are the direct result of historical practices involving:

- fuel, oil, solvent, degreasers and other substances used in manufacturing
- industrial sites such as gasworks, dry cleaners, timber preservation and tanneries
- agricultural chemicals, weedicides and pesticides/termiticides
- waste products, which were often buried.

South Australia has a proud manufacturing history and some chemical disposal and handling practices that were considered appropriate at the time, are no longer acceptable by today's standards. Certain chemical substances left behind by previous activities can cause health problems if humans are exposed to high enough concentrations over a period of time.

Under the *Environment Protection Act 1993* (the Act), liability for site contamination is assigned according to the 'polluter pays' principle – this means that the original polluter is liable for any clean up and associated costs caused on and off the source site, regardless of when it was caused. The EPA administers and enforces the Act to ensure responsible persons undertake this work appropriately. It also makes information on contaminated sites available to the public.

The Act does not contemplate sites where there is no person with liability – an orphan site.

Contact

Andrew Pruszinski
 South Australian Environment
 Protection Authority
 Email: andrew.pruszinski@sa.gov.au
 Phone: +61 411 652 807
 Website: www.epa.sa.gov.au

Assessment program

In 2016, the South Australian Government committed to an investment of \$7.8 million over 4 years to manage a number of legacy orphan sites.

This funding commitment recognises the importance the government places on dealing with the issue of historical contamination. It has asked the EPA to implement this program.

This funding commitment means that the EPA can now undertake assessment work where it believes that there is a potential significant public health risk and where no responsible party has been identified

An EPA investigation (assessment) area may be established where information on site contamination identifies the need for site contamination assessment within a large area. This will typically be in situations when site contamination has been identified (often groundwater contamination) which extends outside the boundaries of a site under investigation and is identified as affecting adjacent numerous land parcels, and a responsible party has not been identified or does not exist.

The EPA will actively engage with all affected owners and occupiers of land when it identifies an EPA assessment area is necessary. It will also engage with other stakeholders such as local, state and federal politicians, media, councils, local organisations, schools and utilities.

First response

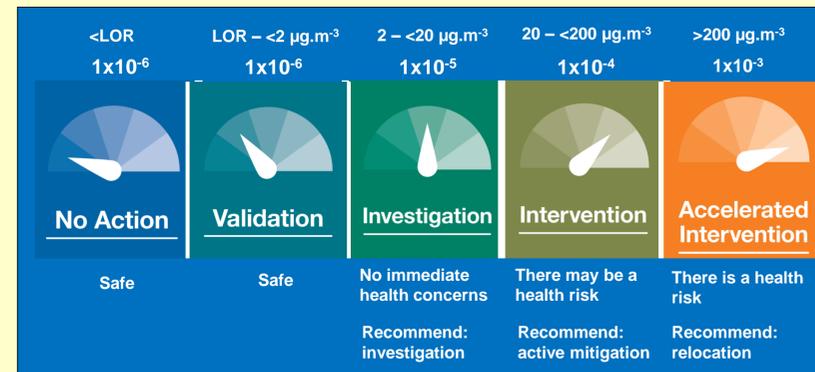
When the EPA considers that there may be a risk to the community, it will normally take the following steps:

- written request to the community for those with bores to not use groundwater for any purpose until further notice
- community engagement as soon as possible to describe what is known, unknown and planned
- first pass assessment of soil vapour and risks from vapour intrusion
- assess the nature and extent of the groundwater contamination.

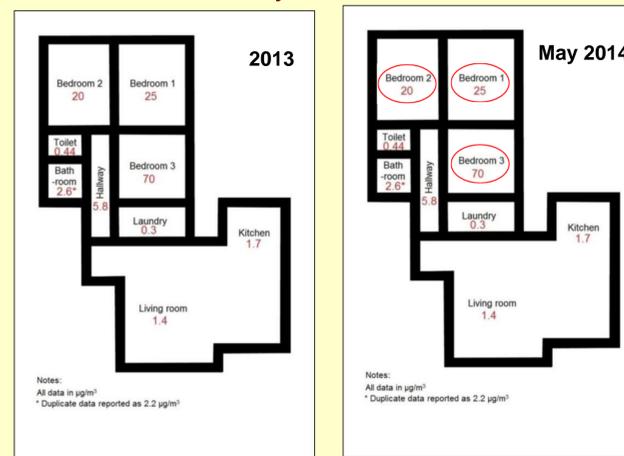
The EPA's main focus is on sensitive land uses (eg residential, childcare, kindergarten).

The South Australian Government has developed a response strategy for vapour intrusion into homes for trichloroethene (TCE).

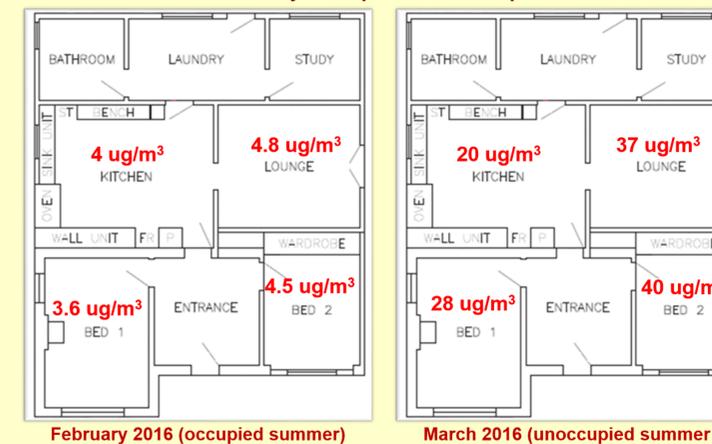
TCE indoor air level response range



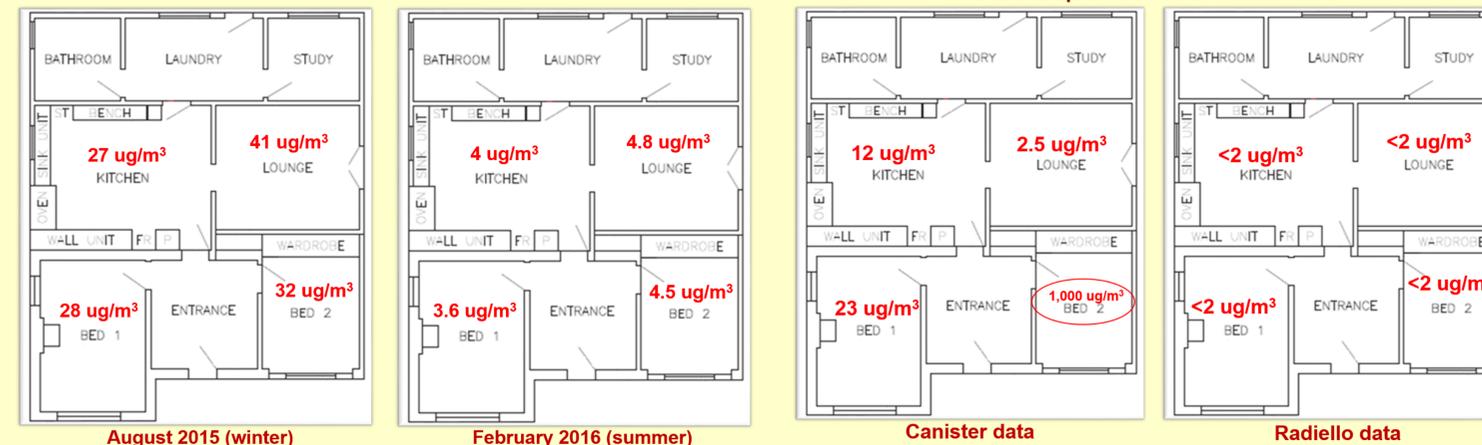
Variability: across a home



Variability: occupied vs unoccupied



Use multiple methods of assessment



Results

The EPA has undertaken multiple large-scale assessment programs across metropolitan Adelaide. This work involves assessment across hundreds or thousands of properties. In the past 3 years assessment has occurred in the suburbs of:

- Beverley
- Clovelly Park/Mitchell Park
- Edwardstown
- Glenelg East
- Hendon
- Thebarton
- Unley.

Typically multiple reports are prepared for each assessment area, as the EPA's understanding of the contamination develops. Once the plume or plumes are understood, reports that consider climatic change are also prepared. All reports are published on the EPA website (see references below) and where relevant discussed in detail with individual home-owners or at community meetings.

The EPA has had access to multiple homes which it has used to undertake studies over extended period of time.

- Considerable variation was measured within the same home:
- for occupied compared to unoccupied – multiple reasons for this
 - in summer compared to winter – multiple reasons for this
 - using sampling techniques – multiple lines of evidence are required
 - between the rooms – multiple reasons for this.

These variations can be significant and must be explained and reported to the home owner and publically.

Conclusions

Communities are genuinely concerned when they are advised of soil, groundwater and/or vapour contamination. The EPA seeks to openly address these concerns as early and as quickly as possible. The assessment programs are typically complex and prolonged.

Every assessment is different however there are some common principles that apply to all work. The EPA is continually adapting the way it assesses chlorinated hydrocarbons to ensure best practice and that it is providing leadership in all aspects of its work.

References

http://www.epa.sa.gov.au/data_and_publications/site_contamination_monitoring/assessment_areas