

## CONTAMINATION OF BARKLY STREET, BRUNSWICK

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### SUMMARY

EPA Victoria has recently received environmental audit reports in relation to contamination from 227–231 Barkly Street and 225 Barkly Street, Brunswick. EPA issued Clean-up Notices to the occupiers of both premises in 2004 requiring detailed assessment of the soil and groundwater contamination surrounding both sites. The detailed assessments included installation of more than 80 groundwater monitoring bores and sampling of soils from more than 60 locations.

The environmental audits provide information about the nature and extent of the contamination and any associated risks. In some areas further work is required to determine the full extent of contamination.

The audits confirmed groundwater contamination has moved to the north, with chemicals associated with dry-cleaning being identified in groundwater at depths of 5–8 m below Weston Street. The depth to the contamination reduces the chance that people will come into direct contact with the contamination. In some cases, contaminant vapours can move through the soil and enter buildings. Results of EPA monitoring of air quality within commercial and industrial premises in the area do not give rise for concern.

EPA will continue to work with all parties, including the current and past occupiers of 227–231 Barkly Street and 225 Barkly Street, to identify an agreed approach to clean-up of these sites.

### BACKGROUND

227–231 Barkly Street is a former industrial site that has been redeveloped for housing. Because the land was re-zoned from industrial to residential use an environmental audit was required. An environmental auditor appointed by EPA undertook this audit. The role of the auditor was to assess the suitability of the site for its new land use.

The auditor identified contaminated soil and groundwater during the course of the audit and advised EPA. This first environmental audit was then stopped to allow further assessment and clean-up of the site.

Before the apartments can be occupied, the site will need to be cleaned up and a Statement of Environmental Audit issued by an auditor, declaring the site to be suitable for the residential use.

Since September 2003, when local residents were first advised of the contamination, EPA has worked with the Department of Human Services and Moreland City Council to provide information about contamination in Barkly Street, Brunswick. This includes a previous Information Bulletin,

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*Contaminated land and groundwater at 227–231 Barkly Street, Brunswick* (EPA Publication 937, January 2004).

## **WHAT HAS EPA DONE?**

In October 2003 EPA undertook air quality monitoring to provide information on the potential for contaminant vapours to enter buildings. The results of this monitoring showed that contaminant concentrations within the commercial/industrial premises are at levels that do not give rise to concern.

In November 2003 and February 2004 EPA issued the owners of 227–231 Barkly Street and 225 Barkly Street respectively with a Clean-up Notice, requiring them to conduct environmental audits to provide a detailed assessment of the nature and extent of contamination on and around each of the sites.

EPA also required that underground storage tanks identified on 225 Barkly Street be tested for their integrity and then emptied to reduce the risk of further contamination.

The environmental audits required by EPA were completed in November 2004 and July 2005.

The completion of the environmental audits required extensive soil and groundwater sampling and other investigations. This included sampling from more than 80 groundwater monitoring bores and soil sampling from more than 60 locations on and around both sites.

The environmental audits have been reviewed by EPA and will be used as a basis to develop clean-up plans for the sites.

In August 2005 EPA conducted further indoor air quality monitoring as a result of concerns raised in the July audit report. The results of this monitoring confirmed EPA's earlier assessment that contaminant concentrations within the commercial/industrial premises are at levels that do not give rise to concern.

## **ENVIRONMENTAL AUDITS**

An environmental audit involves the gathering and detailed assessment of information about land and groundwater contamination, in order to provide an independent opinion on the environmental condition of a particular site. The environmental auditor assesses the nature and extent of any contamination present on the site, the risks associated with any contamination and recommends a way forward to clean up the land.

Further information about the environmental audit system is available in EPA Publication 860, *Environmental auditing of contaminated land*, which can be found on the EPA website at [www.epa.vic.gov.au/publications](http://www.epa.vic.gov.au/publications).

### **Warehouse (225 Barkly St, Brunswick), November 2004**

An environmental audit for this site found that soil and groundwater were contaminated with a range of chemicals associated with dry-cleaning. The audit determined the potential for exposure to the contaminants identified is low, based on the present land use, and that the site is covered by a layer of concrete. The auditor made a number of recommendations for the clean-up and management of the site, such as removal of sources of

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contamination and means by which the soil and groundwater may be cleaned up. The auditor also recommended further groundwater investigation.

## **Audit of areas off-site from 227–231 Barkly St, Brunswick, July 2005**

This audit has identified significant groundwater contamination off-site to the north of the apartment areas. The environmental audit also identified chemicals associated with dry-cleaning contaminating groundwater in Weston Street at depths of 5–8 m. Shallower contamination was identified beneath commercial premises at the rear of 227–231 Barkly Street and 225 Barkly Street.

The auditor identified that migration of contaminant vapours from the soil and groundwater into buildings may pose an unacceptable risk. As a result EPA initiated monitoring of indoor air quality in August 2005, as discussed above.

The auditor made a number of recommendations, including recommendations for the clean-up and ongoing management of the site and further groundwater investigations to fully determine the extent of contamination surrounding the sites.

## **ORIGIN OF CONTAMINATION**

EPA continues to investigate the source of contamination at Barkly St, Brunswick, in conjunction with the occupiers of 227–231 Barkly St (the apartments) and their neighbours.

The environmental audit for 227–231 Barkly Street indicates that, while 225 Barkly Street (warehouse) has the most extensive history of dry-cleaning operations, and is therefore expected to be a key source of the soil and groundwater contamination,

227–231 Barkly St (apartments) was also used for laundry activities and may have also contributed to the contamination.

225 Barkly Street was an industrial dry-cleaning and laundry operation between 1963 and 1992. No dry-cleaning/laundry operations have been carried out at this site since 1992.

## **CHEMICALS PRESENT**

The soil and the groundwater near the surface on part of the warehouse and apartment sites are contaminated with chemicals associated with dry-cleaning, including perchloroethene (PCE), trichloroethene (TCE), dichloroethene (DCE) and vinyl chloride (VC), all chlorinated hydrocarbons.

PCE was the predominant contaminant found. It breaks down slowly in the environment. TCE, DCE and VC are breakdown products of PCE.

Beneath a portion of the warehouse site and to its north, there are degraded white spirit, naphthalene and chlorinated hydrocarbons contaminating a groundwater at depths of 5–8m. White spirit is a solvent, similar to kerosene, also used in dry-cleaning, and naphthalene is used in mothballs and other insect-proofing preparations.

## **LIKELIHOOD OF EXPOSURE**

It is possible for people to be exposed to this contamination by:

- coming in direct contact with the chemicals (followed by absorption through skin or ingestion through hand-to-mouth contact)

or

- breathing in vapours

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Direct contact is unlikely to occur whilst the concrete floors remain intact across both sites. As contamination beneath Weston Street is only encountered at depths greater than 7–8 m it is unlikely that anyone would come into direct contact with the contamination except during major excavation works.

The likelihood of being exposed to these chemicals by breathing the vapour is considered to be low. These chemicals can move as a vapour from the groundwater through the soil, potentially being released through the soil's surface or entering buildings. EPA monitoring has shown vapour levels that do not give rise to concern.

### **People in the local area**

Air measurements indicate that contaminants identified at the sites do not pose a concern to neighbours and passers-by.

Households in Brunswick are serviced by mains water, which means that it does not come from the local groundwater.

### **People who will eventually live in the apartments**

The apartments must not be occupied until the site has been cleaned up and an environmental auditor issues a Certificate or Statement of Environmental Audit indicating the site is suitable for this use.

### **Off-site workers and visitors**

Recent air sampling by EPA in several work places to the north of the two sites has shown levels of chemical vapors to be well below levels that would give rise to concern.

In accordance with previous advice, prior to excavation works at commercial or industrial

premises at the rear of 227–231 and 225 Barkly Street, EPA should be consulted in relation to shallow soil and groundwater contamination.

### **WHERE TO FROM HERE?**

Now that the audit reports for the sites have been completed, EPA will be bringing all parties, including current and past occupiers of the sites, together to work through plans for management and clean-up of the sites.

Pending clean-up of the sites, EPA will continue to ensure information is available to the public regarding contamination in the Barkly Street area.

Please contact the following people if you would like further information:

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