



Executive summary

An Environmental Audit was conducted regarding the risks to human health and the environment associated with the storage and handling of petroleum hydrocarbons from the Caltex service station premises situated at 35-37 Shannon Avenue, Victoria (the site). The Audit was completed in response to a request by Mr Simon Caples on behalf of Caltex Australia Petroleum Pty Ltd. The Environmental Audit was completed by Michael Rehfisch, an employee of Senversa Pty Ltd (Senversa), as a person appointed as an Environmental Auditor (Contaminated Land) under section 53S of the Environment Protection Act, 1970 (the Act). The Environmental Audit and this Audit report were completed in accordance with Section 53V of the Act.

This executive summary should be read in conjunction with the full Environmental Audit report 'Environmental Audit Report, 35-37 Shannon Avenue, Manifold Heights, Victoria'.

A summary of the Audit is outlined below.

Summary of Audit Information

EPA file reference no.	63348-1
Auditor	Michael Rehfisch
Name of person requesting audit	Formerly Elizabeth Townsend, then Simon Caples, now Belinda Patterson Caltex Australia Petroleum Pty Ltd
Relationship to premises/location	Owners Representative
Date of request	14 February 2008
Date EPA notified of audit	18 February 2008
Completion date of the audit	20 June 2011
Reason for audit	EPA s.62A Clean Up Notice No. 7206, served 9 July 2008, since lapsed
Description of activity	Storage and handling of petroleum hydrocarbons
EPA region	South West
Dominant – Lot on plan	Lot 1 LP55916
Additional – Lot on plan(s)	-
Site/premises name	Caltex Service Station
Building/complex sub-unit no.	-
Street/Lot – Lower No.	35
Street/Lot – Upper No.	37
Street Name	Shannon
Street type (road, court, etc)	Avenue
Suburb	Manifold Heights
Postcode	3218

Summary of Audit Information

GIS coordinates of site centroid Latitude (GDA94) Longitude (GDA94)	38.130880 144.337931
Members and categories of support team utilised	Ms Kristi Hanson – contaminant transport and assessment of exposure pathways and risk. Dr Bruce Anderson – remedial and geotechnologies (whilst Auditor employed at AECOM).
Other support staff used on Audit	Michael Charge
Outcome of Audit	Recommendations on measures to manage risk to an acceptable level
Further work or requirements	As detailed in Section 11 of this report.
Groundwater segment	C
Surrounding land use	North – roadway then low density residential South – medium density residential East – roadway then vacant land comprising former Mobil Oil service station West – commercial premises (Recreational and Educational Adult Program (REAP) Scope Centre)

Following the identification of polluted soil and groundwater at the site, EPA served a clean up notice under Section 62A of the Environment Protection Act, 1970 (the Act), requiring Caltex Australia Petroleum Pty Ltd (Caltex) to complete the following:

- Review underground petroleum storage system integrity.
- Delineate the extent of off-site groundwater contamination originating from the premises.
- Develop a clean up plan for the clean up of land on the premises and groundwater on and from the premises.
- Complete an Environmental Audit pursuant to section 53V of the Act.

The site has operated as a service station for 30 to 40 years and prior to 1987 the site was operated by Shell. Historically the site operations included a mechanical workshop, but currently the site only distributes fuel (i.e. operational service station). The site operates in a mixed residential and commercial area including a former Mobil Oil service station on the opposite south eastern corner of Shannon Avenue and Church Street.

Geo & Hydro Pty Ltd (1994), Handex (1999) and more recently URS (current assessment consultant) have completed various investigations that have identified the following contamination:

- Shallow soil impact limited to the area surrounding the former and current fill points on the western boundary of the site.
- Deeper soil impact associated with groundwater impacts at the water table at a depth of approximately 9 metres below ground surface, where a Light Non-Aqueous Phase Liquid (LNAPL) comprising petroleum hydrocarbons is present.
- Groundwater impacts on and from the site comprising LNAPL and dissolved phase hydrocarbons migrating off-site to the north east with groundwater flow.

In accordance with the State Environment Protection Policy (Groundwaters of Victoria) and EPA Publication 840 (EPA, 2002), where groundwater is polluted it should be cleaned up to restore beneficial uses (pollution is defined as exceedence of indicator objectives). Where this is not possible or feasible, groundwater must be cleaned up to the extent practicable (CUTEP). Based on the most

recent round of groundwater monitoring remediation is required. The proposed remediation strategy (in the context of ongoing service station operations) comprises:

- Replacement of failed underground petroleum storage system fuel distribution infrastructure (completed).
- Following review of hydrocarbon remedial technologies, URS proposes a strategy for the site comprising on-site shallow Soil Vapour Extraction (SVE) for unsaturated (soil) clean up and Multi Phase Extraction (MPE) to address LNAPL and dissolved phase impacts on and off-site.
- Ongoing environmental monitoring to assess the effectiveness of the strategy and to confirm the risk posed by soil, groundwater and vapour emissions at and from the site.

Based on the results of the Audit, the Auditor has prepared a number of management responses as detailed in **Section 11** of this report.