



Contaminated Sites Act 2003
Basic Summary of Records Search Response

Report Generated at: 2:39:40PM, 15/11/2012

Search Results

This response relates to a search request received for:

Approximate spatial representation of Lot 10976 on Deposited Plan 216860 known as Subject A on Deposited Plan 72329.

This parcel belongs to a site that contains 1 parcel(s).

According to Department of Environment and Conservation records, this land has been reported as a known or suspected contaminated site.

Address	Approximate spatial representation of Lot 10976 on Deposited Plan 216860 known as Subject A on Deposited Plan 72329.
Lot on Plan Address	
Parcel Status	<p>Classification: 08/09/2011 - Remediated for restricted use</p> <p>Nature and Extent of Contamination:</p> <p>Hydrocarbons (such as from petrol or diesel) are present in groundwater beneath the site.</p> <p>Restrictions on Use:</p> <p>The land use of the site is restricted to recreational open space and public roads. Enclosed buildings should not be constructed on the site without further contamination assessment and/or remediation.</p> <p>Due to the presence of hydrocarbons in superficial groundwater, a site-specific health and safety plan is required to address the risks to the health of any workers undertaking intrusive works below 2m depth until further notice.</p> <p>Groundwater within the superficial water table is not suitable for use without treatment for the presence of hydrocarbon contamination.</p> <p>Reason for Classification:</p> <p>This site was originally reported to the Department of Environment and Conservation (DEC) prior to the commencement of the 'Contaminated Sites Act 2003', and was reported again as per reporting obligations under section 11 of the Act in May 2007. The site classification is based on technical information submitted to DEC by July 2011.</p> <p>The site is part of the Rottnest Island settlement area, and is currently used for public open space and roads.</p> <p>The site was reported because a fuel leak was detected from an underground fuel storage tank (UST) in 1997, and because a series of contamination investigations between 1997</p>

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and 2007 found hydrocarbons (such as from petrol or diesel) in groundwater.

Two contamination assessments were initially carried out in 1997, following a report that a diesel leak had occurred from underground fuel infrastructure (storage tanks and/or pipelines). These assessments, which were limited to groundwater investigations, found that phase-separated hydrocarbons (PSH) (such as pure petrol or diesel) were floating on the surface of the groundwater.

Active remedial works, comprising a PSH recovery system (to 'skim' PSH from the surface of the groundwater), were undertaken in December 1997. An 'enhancement trench' (which is a trench containing high permeability material, such as gravel) was also installed to attempt to increase recovery. These works were ceased in January 1998 when no further PSH could be recovered.

Groundwater monitoring in November 1998 found that PSH (such as pure petrol/diesel) remained floating on the surface of the groundwater.

Groundwater monitoring continued to be undertaken on a quarterly to annual basis between November 1998 and July 2005, with an additional sampling event in February 2007. During this period, hydrocarbons continued to be detected in groundwater, but concentrations were observed to decrease. By December 2004, the concentration of dissolved-phase hydrocarbons in groundwater had reduced to a level that indicated that PSH was no longer present at the site (i.e. petroleum hydrocarbons did not appear to be floating on top of the water table).

The most recent monitoring round in March 2007 found that hydrocarbons (such as from petrol or diesel) were present in groundwater at the centre of the plume at concentrations exceeding Aquatic Ecosystems - Marine guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010) (marine water guidelines), which is the relevant assessment level for the protection of marine ecosystems. These guidelines are relevant because Thomson Bay is located immediately to the east of the site.

Three groundwater bores were installed along the coast, between the centre of the groundwater plume area and the nearby marine environment (Thomson Bay). These groundwater bores were sampled from quarterly to annually between June 1999 and July 2005. Hydrocarbons were occasionally present in groundwater at concentrations exceeding marine water guidelines (DEC, 2010); however, these concentrations were observed to decrease over time. By July 2005, no contaminants were present in two of these bores, and by February 2007, all contaminants in the remaining 'coastal' groundwater bore had reduced to levels below marine water guidelines (DEC, 2010).

Marine water in Thomson Bay has been sampled on 15 occasions between August 2000 and July 2005, and in the majority of these sampling events no contaminants were detected. Minor concentrations of hydrocarbons (such as from petrol or diesel) were detected during three sampling events in June 2002, June 2004 and December 2004. However, contaminants have never been detected in Thomson Bay at concentrations exceeding marine water guidelines (DEC, 2010).

An intermediate health risk assessment and a screening ecological risk assessment were

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undertaken for the site in May 2003. The risk assessment works found that the contamination present on the site did not pose an unacceptable risk to human health, the environment or environmental values under the land use at the time: however, further monitoring was required to determine whether the extent of the groundwater plume was increasing.

A detailed health risk assessment and another screening ecological risk assessment were undertaken in May 2008, after further groundwater monitoring had been conducted.

The screening ecological risk assessment undertaken in May 2008 found that as hydrocarbons have never been detected in Thomson Bay at concentrations exceeding marine water guidelines, and as the extent of the groundwater plume is well delineated and has been shown to be stable or decreasing in size, the levels of hydrocarbons present in groundwater beneath the site do not pose an unacceptable risk to the environment or any environmental value under any land use.

A detailed health risk assessment (HRA) was undertaken in May 2008. The HRA has indicated that the contamination present on the site has attenuated to a level that does not pose an unacceptable risk to human health under the current and proposed land use (public open space). However, the HRA found that vapour gas intrusion has the potential to create unacceptable odours or pose a risk to the health of building occupants, and therefore the site may not be suitable for the construction of enclosed buildings. A site-specific health and safety plan should also be developed to manage potential risks to construction workers during any excavations (e.g. by limiting or avoiding exposure to contaminated groundwater).

Further contamination assessment was conducted in February 2009 in accordance with the guideline "Use of Monitored Natural Attenuation for Groundwater Remediation" (Department of Environment, April 2004), to determine whether Monitored Natural Attenuation (MNA) was a viable strategy to remediate the site such that it was suitable for any land use. This assessment indicated that natural attenuation had been occurring at the site (e.g. contaminants were being degraded, the concentrations of contaminants were decreasing, and the size of the plume was stable or decreasing). On this basis, the assessment found that MNA was a viable remedial strategy. However, groundwater plume modelling indicated that MNA could take several decades to reduce contaminants to levels such that the site was suitable for any land use.

The investigations and risk assessment works were the subject of an independent review by an accredited Contaminated Sites Auditor who provided a Voluntary Auditor's Report (VAR) dated June 2011. The VAR recommended that the site is suitable for public open space and public roads, but that it may not be suitable for the construction of enclosed buildings. DEC and the Department of Health accept the findings of the VAR.

As the site is contaminated and has been remediated such that it is suitable for public open space and public roads, but may not be suitable for the construction of enclosed buildings, the site is classified as 'remediated for restricted use'.

Periodic monitoring of groundwater is required on an ongoing basis to confirm that the groundwater plume remains stable and/or continues to decrease.

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	<p>The site is also subject to ongoing management under the Rottnest Island Management Plan, which is a requirement of the 'Rottnest Island Authority Act 1987'.</p>
<p>Certificate of Title Memorial</p>	<p>DEC, in consultation with the Department of Health, has classified this site based on the information available to DEC at the time of classification. It is acknowledged that the contamination status of the site may have changed since the information was collated and/or submitted to DEC, and as such, the usefulness of this information may be limited.</p>
<p>Current Regulatory Notice Issued</p>	<p>Under the Contaminated Sites Act 2003, this site has been classified as "remediated for restricted use". For further information on the contamination status of this site, please contact the Contaminated Sites Branch of the Department of Environment & Conservation.</p> <p>Type of Regulatory Notice: Nil</p> <p>Date Issued: Nil</p>
<p>General</p>	<p>No other information relating to this parcel.</p>

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