Contaminated Sites Act 2003
Basic Summary of Records Search Response

Report generated at 05:34:03AM, 06/06/2025

Receipt No:	
ID No:	*12423*

Search Results

This response relates to a search request received for:

Crown Reserve 11648
Barrow Island, WA, 6712

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

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

Address	Crown Reserve 11648 Barrow Island, WA, 6712
Lot on Plan Address	Crown Reserve 11648
Parcel Status	**Classification:** 12/08/2020 - *Contaminated - remediation required* **Nature and Extent of Contamination:** Terminal Tanks Facility - Crude oil is present at depth as a stable and attenuating smear zone on the water table. B34 Flowline Leak - Petroleum hydrocarbons have been identified in soil and groundwater in the vicinity of B34 wellhead and flowline. Suck-back line - Residual petroleum hydrocarbons are present in soil and groundwater in the vicinity of the suck-back line B34 - Residual petroleum hydrocarbons remain beneath site infrastructure. R28 Flowline Leak - Petroleum hydrocarbons are situated in soil and groundwater in the vicinity of the R28 flow line. Z56 Flowline Leak - Petroleum hydrocarbons are situated in soil and groundwater in the vicinity of Z56 flow line. Satellite Station A - Petroleum hydrocarbons have been identified in soil and groundwater in the vicinity of A Station. Satellite Station B - Petroleum hydrocarbons have been identified in soil and groundwater in the vicinity of B Station. Satellite Station C - Petroleum hydrocarbons have been detected in soils in the vicinity of satellite station C. There is also a potential for groundwater contamination in this area. Satellite Station D - Petroleum hydrocarbons have been detected in soils in the vicinity of D Station. There is also a potential for groundwater contamination in this area. Satellite Station M - Petroleum hydrocarbons have been detected in soil and groundwater in the vicinity of M Station. Satellite Station R - Petroleum hydrocarbons have been detected in soil and groundwater in the vicinity of R Station. Water Flood Station 1, 2, 3 5 and 7- Petroleum hydrocarbons and contamination associated with corrosion inhibitors and drilling mud may be present in soil and groundwater at each water flood station. L71 Liquid Waste Evaporation Facility - Petroleum hydrocarbons have been identified in groundwater

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in the vicinity of the L71 Facility.
R73 Former Inert Waste Disposal Site - Petroleum hydrocarbons been detected in groundwater in the vicinity of the former solid waste landfill R73. Barium, cadmium, hexavalent chromium, lead, mercury and zinc), were detected in soil within the inert waste disposal cells.
Airport Facility - Petroleum hydrocarbons have been identified in soil and groundwater in the vicinity of the Airport Facility.
WAPET Landing South - Asbestos containing material and asbestos fibres were detected in a storage and laydown area. Access to the area is restricted and impacts are undergoing remediation.

Restrictions on Use:

The terminal tanks facility is to be managed in accordance with the contaminated sites auditor endorsed management plan "Barrow Island Terminal Tanks Site Management Plan" (Golder Associates, 30 June 2015).
The B34 site is to be managed in accordance with the management plan "Barrow Island B34 Site Management Plan" (Golder Associates, November 2014)
The R28 flowline leak site is to be managed in accordance with the management plan "Site Management Plan R28 Flowline Leak Site, Barrow Island (Enpoint, February 2018)
The Z56 flowline leak site is to be managed in accordance with the management plan "Site Management Plan Z56 Flowline Leak Site, Barrow Island (Enpoint, April 2018)
The site should not be developed for a more sensitive use such as recreational open space, residential use or childcare centres without further contamination assessment and/or remediation.
As groundwater beneath the site has been shown to be contaminated, groundwater abstraction should be restricted until chemical analyses is undertaken to confirm that it is suitable for its intended use.

Reason for Classification:

This site was reported to the Department of Water and Environmental Regulation (the department) prior to the commencement of the 'Contaminated Sites Act 2003' (the Act). The site was first classified under section 13 of the Act based on information submitted to the department by November 2006. The site has been classified again under section 13 of the Act to reflect additional technical information submitted to the department by June 2020.

Barrow Island is a Class A Nature Reserve (Reserve No. 11648) which has been used for oil and gas exploration and production since 1964. In addition to oil and gas exploration, production, refining and storage, land uses on the site also include an airport, bulk fuel and oil storage (Terminal tank facility), maintenance workshops, wastewater treatment, chemical processing, manufacturing and storage, drilling and well maintenance operations, electricity generation, landfilling and port and wharf operations. These are activities that have the potential to cause contamination, as specified in Appendix B of the guideline 'Assessment and management of contaminated sites' (Department of Environment Regulation [DER], 2014).

Historical activities at the site have resulted in a number of areas being impacted by contamination, predominantly in the form of hydrocarbon (such as from oil) contamination within soil and/or groundwater at the impacted locations.

The site operates under Environmental Protection Act 1986 (EP Act) licenses L9102/2017/1 and L4467/1972/14, which include specific requirements for environmental monitoring at the licensed or prescribed activity locations.

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Hydrocarbon contamination in soil and/or groundwater has been reported at multiple locations across the site. The department has been provided with multiple assessment reports for the reported locations of contamination, in addition to reports provided by accredited contaminated sites auditors.

The following information is a summary of the assessments provided to the department for the reported locations.

Terminal Tank Facility

The terminal tank facility is located between Latitude Point and Town Point. It is comprised of five storage tanks, with a combined storage capacity of 300,000 barrels of crude oil, as well as associated infrastructure.

A contamination assessment was conducted within the terminal tank facility following the identification of oil on the water-table during routine shallow drilling in 1981. A number of known and unknown spill events and accidental releases of crude oil and oil/water mixtures are understood to have occurred up until 2006.

It is estimated that between 300,000 and 900,000 litres of crude oil may have been present on the water-table covering an area of approximately 18 hectares. In 1981, investigations confirmed that soil beneath the site was contaminated with hydrocarbons (such as from crude oil). Subsequent groundwater investigations identified a phase separated hydrocarbon (PSH) plume and a dissolved phase hydrocarbon plume beneath the terminal tank facility.

During investigations, hydrocarbon contamination was detected in soil samples collected at depths ranging from ground level to around 10.8 metres below ground level (bgl).

A network of recovery wells was installed in 1999. In 2007 a remediation strategy was implemented for the recovery and remediation of hydrocarbon impacted groundwater at the terminal tank facility. A site management plan (SMP) for the terminal tank facility was developed to monitor remediation activity which included a biannual groundwater monitoring program and biennial nearshore marine environmental monitoring.

The PSH plume footprint is estimated to cover an area of approximately 18 hectares and is generally stable. The vertical distribution of the plume varies throughout the year depending on rainfall and hydrocarbon recovery (skimmer) operations. PSH has not been encountered in any of the coastal or beach monitoring wells, supporting assumptions that the plume is stable and does not appear to be migrating to or impacting the near shore marine environment.

Terminal Tank Facility - Current Status

An accredited contaminated site auditor was appointed to review reports from a number of investigations and assessments for the terminal tank facility. A Mandatory Auditor's Report (MAR) was submitted to the department in 2016 which focused on a Conceptual Site Model (2013), Human Health Risk Assessment (2013), Ecological Risk Assessment (2013) and the Site Management Plan (2015).

The auditor concluded that residual contamination within the groundwater (and associated soils) at the terminal tank facility was unlikely to present an unacceptable risk to human health and/or the environment based on the ongoing use of the site as an oil storage facility.

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The auditor advised that they were satisfied that the residual PSH within the terminal tank facility was undergoing natural attenuation. The auditor agreed with the conclusions of the site investigation, i.e. that migration of PSH from the site to the marine environment is unlikely considering the stability and reducing concentrations of hydrocarbons within the source area and the overall recharge of sulfate from the marine environment to sustain bacterial degradation. The auditor also assessed the SMP prepared for the terminal tank facility and determined that it was appropriate for ongoing groundwater monitoring and management.

Suck Back Line

The suck back line (SBL) was constructed in 1967 and forms part of the pipeline infrastructure that transports crude oil from the terminal tank facility to the offshore tanker mooring. The SBL includes a section of underground pipeline (between the terminal tanks and the beach), and an exposed section on the beach which includes a pump and pump housing. The longest section of the SBL includes a submarine section running from the beach to the tanker mooring around a kilometre offshore. Hydrocarbon impacts are present in soils associated with 'pinhole leaks' in the SBL which were identified in September 2008 during excavation works as part of routine maintenance of the submarine SBL.

Groundwater investigations revealed the presence of light non-aqueous phase liquids (LNAPL) in the form of phase separated hydrocarbons (PSH) within groundwater beneath or in close proximity to the SBL. A groundwater remediation program was subsequently implemented which included the installation of a skimmer system and later, a passive remediation system involving the use of absorbent socks.

Suck Back Line - Current Status

An accredited contaminated sites auditor was appointed to review the adequacy of site investigations and to confirm that management measures proposed through the SMP were adequate to manage potential risks at the site.

The auditor has indicated that they are satisfied that the nature and extent of hydrocarbon impacts in soil have been adequately characterised so as to form a reasonable basis on which to assess risk. The auditor determined that residual soil impact is likely to remain within close proximity to the SBL and other infrastructure in the area that is impractical to remove under ongoing operational conditions. The auditor agreed with the conclusion of site investigations that further migration of hydrocarbon impacts from the site in groundwater is unlikely, and that natural attenuation of residual hydrocarbon impacts is occurring.

The auditor further concluded that the contamination status of the site is such that it does not represent an unacceptable risk to human health or the environment based on the ongoing use of the site as an oil and gas production facility. The department noted and concurred with the auditor's conclusions that residual PSH of approximately 1 mm in thickness is stable and is unlikely to pose a risk to the marine environment.

However, the department did not concur with the conclusion that further remediation and monitoring at the site was not required. The department remains of the view that further monitoring is required for ongoing assessment of natural attenuation.

Location B34

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Location B34 is located on the southern tip of Barrow Island, between South End and Stokes Point and comprises an area of around 9.5 hectares. Location B34 has operated as a well site for oil production since 1968 and includes facilities associated with the production and transport of oil. The site has been the subject of various groundwater investigations since 2003 and two leaks were recorded in 1991 inside the B34 well casing and in 2003 in the 'flowline' located approximately 40 metres north of Bandicoot Bay on the southern portion of the island.

Surface staining and hydrocarbon impacts (such as from crude oil and oily water) have been observed in soil. Hydrocarbon impacts observed at depth are considered to represent a 'smear zone' (the area of impact at the fluctuating interface of the groundwater table) across the site.

Investigations over a period of around 10 years have focussed on groundwater impacts and the associated potential to impact the marine environment. PSH and dissolved phase hydrocarbons have been detected in groundwater beneath the site. Polycyclic aromatic hydrocarbons (PAH's) have been detected in groundwater at concentrations exceeding marine water quality guidelines. Groundwater impacts have been demonstrated to be stable over time and appear to be degrading and not discharging to the marine environment. The proposed remediation strategy for Location B34 remains in-situ remediation of groundwater by monitored natural attenuation.

Location B34 - Current Status

An accredited contamination sites auditor commenced an audit of Location B34 in 2009. In October 2016 a MAR was prepared following the completion of a Conceptual Site Model (CSM) and Site Management Plan (SMP) for the site.

Based on the information provided, the department broadly concurred with the auditor's conclusions that, subject to the limitations posed by an operating well site, investigations for soil and groundwater contamination at Location B34 were carried out in general accordance with the department's 'Contaminated Sites Guidelines' (2014) and the 'National Environment Protection (Assessment of Site Contamination) Measure 1999' (NEPM).

The auditor further concluded that the residual contamination at the site does not represent an unacceptable risk to human health or the environment based on the site's ongoing use for oil and gas production. However, upon closure and decommissioning of Location B34 infrastructure, further works will be required to investigate and, where required, remediate residual contamination to ensure that the site is suitable for the likely end land use as a Class C Nature Reserve.

R28 Flowline Leak

The R28 flowline is located approximately 100 metres southeast of the R38M production well. In March 2011, a break was identified in the R28 flowline approximately 100 metres southeast of the R38M well head following a tropical cyclone. The break was due to damage caused by entrained vegetation within stormwater runoff during the cyclone. An estimated 7,400 litres of crude oil and 123,000 litres of produced formation water was released, impacting an area of approximately 25 square metres of soil and vegetation within the drainage line.

Routine groundwater monitoring, undertaken at the site since 2011 identified the presence of PSH in two monitoring wells and dissolved phase hydrocarbons, intermittently detected in three monitoring wells located to the north, west and southwest of the R28 flowline leak.

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In September 2014, surface soil sampling was conducted at the site and a nearby background location. Soil investigations identified barium at concentrations exceeding the maximum local background concentration. However, further assessment of barium in soil indicated that the soluble fraction of barium was less than the Ecological Soil Screening Level. Hydrocarbons were not detected above the laboratory limit of reporting at any sampling location tested in the 2014 investigation.

R28 Flowline Leak - Current Status

An accredited contamination sites auditor commenced an audit of the R28 site in 2016. In December 2019 a MAR was submitted to the department to provide a formal review of site investigations and the development of a SMP for the ongoing management of contamination at the site.

The auditor concluded that investigations conducted at the R28 site had been sufficient to adequately characterise soil and groundwater contamination. The auditor concluded that the SMP and the existing monitoring network was adequate to assess ongoing natural attenuation. The auditor noted that the residual hydrocarbon impacts in groundwater appeared relatively localised, stable and do not appear to be migrating beyond the existing monitoring area.

Z56 Flowline Leak

The Z56 flowline leak site is situated approximately 800 metres south of the Z56M well head and was the location of a flowline leak that was detected in May 2001. Investigations determined that approximately 20,000 litres of crude oil and 14,000 litres of saline water had discharged over an area of around 300 square metres. The site is situated approximately 500 metres southeast of Whites Beach and 400 metres southeast of a natural groundwater seep.

The area was initially treated with gypsum and nitrogen to enhance bioremediation. Initial soil investigations estimated that 20 cubic metres of surface soil was impacted by hydrocarbons at concentrations exceeding Ecological Investigation Levels. Residual soil contamination remained in-situ to a depth of around 0.1 m bgl. However, the migration of hydrocarbon contamination to the underlying limestone has not been assessed.

Groundwater investigations at the site have detected PSH on groundwater covering an area of approximately 7,000 square metres with a thickness of 0.25 metres. A dissolved phase hydrocarbon plume was also detected 20 metres down gradient of the leading edge of the PSH plume. PAH's were detected in groundwater at concentrations exceeding the current Aquatic Ecosystems - fresh and marine water guidelines.

In 2002 recovery trials were initiated from two wells utilising a vacuum truck. However, significant product recovery was not considered feasible and in-situ remediation of groundwater by monitored natural attenuation was proposed.

Z56 Flowline Leak - Current Status

In September 2010 an accredited contaminated sites auditor was appointed to review the Z56 flowline leak incident, subsequent remediation and monitoring and a SMP which had been prepared for the site. A MAR was completed and submitted to the department in August 2019.

The auditor concluded that the current contamination status of the site had been adequately characterised and considered that there had been sufficient groundwater monitoring undertaken at the site to demonstrate the stability of the hydrocarbon plume.

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The department concurred with the auditor's conclusion that assessment and monitoring of groundwater at the site had demonstrated the stability of the residual hydrocarbon plume and that the impacts from the Z56 flowline leak were not considered to pose a risk to human health the environment or any environmental values, beyond those which already exist at the oil and gas processing site. The department also broadly concurred with the auditor's recommendation that no further actions in relation to the Z56 flowline leak event were required.

L71 Liquid Waste Evaporation Facility

The Liquid Waste Evaporation Facility was constructed in 1996, and includes two double lined HDPE evaporation ponds, a sealed vehicle wash-down pad and wash-down facilities, a silt trap and oil/water separator, J Station interceptor, spray ramp, tank, concrete sludge collection pit, and fencing. A contamination assessment was conducted at the L71 liquid waste evaporation facility following the identification of a leaking seal between the concrete wash-down pad and the first stage of the drainage ponds at the site in November 2001. This leak was determined to have impacted an area of around 18 square metres of soil. However, the extent of soil contamination has not been determined.

L71 Liquid Waste Evaporation Facility - Current Status

Quarterly groundwater monitoring at four monitoring wells is on-going at the site under the EP Act Prescribed Premises License L4467/1972/14. There has been historical (periodic) detection of petroleum hydrocarbons and metals in groundwater. Investigation of background metals concentrations across Barrow Island suggests that metals observed in groundwater at L71 may be naturally occurring.

R73 Former Inert Waste Facility.

The former R73 Inert Waste Disposal Facility, operated as an inert waste disposal facility from 1988 until 2004. Disposed waste included concrete, pallets, empty drums, plastic, wood, pipe and miscellaneous scrap metal. There is no record of putrescible waste, sewage or liquid waste disposal at the site. The landfill area was covered with a thin layer of locally-sourced gravel after closure in 2004. The site has been subsequently used for the storage of cleared vegetation.

Investigations undertaken to date have included Detailed Site Investigation and on-going monitoring of groundwater conditions in the vicinity of the facility. Metals (barium, cadmium, hexavalent chromium, lead, mercury and zinc), were detected in soil within the inert waste disposal cells, at concentrations above background concentrations and ecological assessment criteria, and are likely associated with the historical waste disposal.

R73 Former Inert Waste Facility - Current Status

Biannual groundwater monitoring is on-going, in accordance with the "Barrow Island Operating Oil Facilities - Groundwater Monitoring Plan" (BWI GMP) (2004). Petroleum hydrocarbons have been detected intermittently during historical groundwater monitoring events, but there have been no detections in groundwater at the site since 2016. Metals have been detected in groundwater intermittently at concentrations above the ecological assessment criteria, but investigations have assessed these concentrations to be indicative of background conditions.

Satellite Pump Stations

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Contamination assessments were conducted at the following satellite pump stations as part of a rationalisation program. The rationalisation involved the removal of separator vessels, standby tanks and other infrastructure, with manifolds, pipework and limited tankage remaining in use at each site. All accessible contaminated soil was reportedly excavated and transported to the terminal tank bioremediation facility for remediation. Backfill material, utilised as fill material for the excavation areas at all of the following sites, contained levels of chromium at concentrations exceeding the current Ecological Investigation Levels.

Satellite Station A

Station A is located within G block, approximately three kilometres north of Bandicoot Bay and five kilometres east of the Barrow Island western coast. Soil investigations conducted in October 2003 identified the presence of petroleum hydrocarbons at concentrations exceeding Ecological Investigation Levels.

Remedial works were conducted in December 2004 and October 2005 including the excavation of approximately 13,251 cubic metres of soil. Further excavations could not be completed due to the underlying limestone geology and close proximity of existing infrastructure at the site. Residual hydrocarbon contamination is present in limestone below the Station A area. Validation samples collected following remedial excavations identified the presence of petroleum hydrocarbons, chromium, copper, arsenic and barium at concentrations exceeding Ecological Investigation Levels.

Groundwater investigations detected PSH with an estimated thickness ranging from 0.06 metres to 0.27 metres and a dissolved phase hydrocarbon plume present beneath the Station A area. Petroleum hydrocarbons, ethylbenzene and xylene have been detected in groundwater. PAH's have also been detected in groundwater in close proximity to Station A at concentrations exceeding Aquatic Ecosystems - fresh and marine water guidelines.

Satellite Station A - Current Status

A accredited contaminated sites auditor has been appointed to the site and at the time of classification the department understands that the groundwater monitoring program has been revised and endorsed by the auditor, LNAPL investigations completed, a conceptual site model for the site updated and that investigation and risk assessment is ongoing. Investigations indicate that elevated concentrations of some metals in soils may be representative of background conditions.

Satellite Station B

Station B is located within F block and is approximately six kilometres from the east, west and south coasts of Barrow Island. Soil investigations conducted in October 2003 identified the presence of petroleum hydrocarbons, metals, barium and chromium at concentrations exceeding Ecological Investigation Levels.

Remedial works were conducted in December 2003 and September 2005, involving the excavation of approximately 5,357 cubic metres of soil from the Station B area. Further excavations could not be completed due to the underlying limestone geology. Residual hydrocarbons have been detected in limestone below the Station B area. Validation sampling undertaken following remedial excavations confirmed the presence of residual petroleum hydrocarbons and the metals chromium, arsenic and barium at concentrations exceeding Ecological Investigation Levels.

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Ongoing investigations have been undertaken at the site since the identification of impacts in 2003 and subsequent remedial excavation of accessible impacted soils. These investigations have identified three distinct PSH plumes in groundwater covering an area of approximately 50 hectares with an associated dissolved phase plume surrounding the PSH plumes.

An accredited contaminated sites auditor was initially appointed on a voluntary basis and, following a written request from the department in August 2016, was appointed to produce a MAR for contamination investigations and remediation works and reporting for the Station B area.

A MAR was received by the department in November 2016 in which the auditor concluded that information contained in the reports provided was generally accurate and sufficiently compliant with the requirements of the department's Contaminated Sites guidelines and other relevant published technical guidance. The Auditor concurred with the conclusions of investigations in that potentially complete exposure pathways have been identified under the current site use as an oil and gas production facility. These included terrestrial biota (flora and fauna) and subterranean fauna including stygofauna and troglofauna populations.

The auditor considered that additional assessment including a further groundwater risk assessment incorporating an assessment of mass flux and mass reduction requirements over time is necessary to sufficiently characterise risk and to inform future groundwater remediation and management objectives at the site.

Satellite Station B - Current Status

The department understands that key activities have been completed and submitted to the auditor including annual groundwater monitoring, a natural source zone depletion report, an updated conceptual site model and a remedial action plan (RAP).

Satellite Station C

Soil investigations conducted in October 2003 identified the presence of petroleum hydrocarbons and the metal chromium at concentrations exceeding Ecological Investigation Levels.

Remedial works conducted in 2005 involved the removal of approximately 2,300 cubic metres of impacted soil from the Station C area down to the underlying limestone. Validation samples collected following excavations identified the presence of residual petroleum hydrocarbons, PAH, metals, zinc, barium and arsenic at concentrations exceeding Ecological Investigation Levels.

Satellite Station C - Current Status

Groundwater investigations have not been conducted at Station C and the current status of groundwater beneath the area is unknown. Further investigations are required at the site to determine the nature and extent of contamination in soil and groundwater, and a risk assessment to determine potential risk to human health, the environment or any environmental values.

Satellite Station D

Soil investigations conducted in October 2003 identified the presence of petroleum hydrocarbons and chromium at concentrations exceeding Ecological Investigation Levels.

Remedial works conducted in 2005 involved the removal of approximately 500 cubic metres of

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impacted soil from the Station D area down to the underlying limestone. Validation sampling identified the presence of residual petroleum hydrocarbons at concentrations exceeding Ecological Investigation Levels.

Satellite Station D - Current Status

Groundwater investigations have not been conducted at Station D and the current status of groundwater beneath the area is unknown. Further investigations are required at the site to determine the nature and extent of contamination in soil and groundwater, and a risk assessment to determine potential risk to human health, the environment or any environmental values.

Satellite Station M

Station M is located within B block and is located approximately 600 metres north of Bandicoot Bay. Soil investigations conducted in October 2003 identified the presence of petroleum hydrocarbons and metals at concentrations exceeding Ecological Investigation Levels.

Remedial works were conducted in December 2003 and October 2005 involving the excavation of approximately 7,918 cubic metres of impacted soil from the Station M area. Further excavations could not be completed due to the underlying limestone geology of the area. Residual hydrocarbons have been detected in limestone below the Station M area. Validation sampling identified the presence of residual petroleum hydrocarbons and barium at concentrations exceeding Ecological Investigation Levels.

Groundwater investigations detected a PSH plume with an estimated thickness of 0.01 metres. Petroleum hydrocarbons, ethylbenzene and xylene have been detected in groundwater beneath Station M. PAH's have also been detected in groundwater in close proximity to Station M at concentrations exceeding Aquatic Ecosystems - fresh and marine water guidelines.

Satellite Station M - Current Status

The department understands that a groundwater monitoring plan and conceptual site model were updated in 2009 and endorsed by the auditor. A MAR is being prepared for submission to the Department.

Satellite Station R

Station R is located within Q block and is approximately three kilometres east of Turtle Bay. Soil investigations conducted in October 2003 identified the presence of petroleum hydrocarbons and chromium at concentrations exceeding Ecological Investigation Levels.

Remedial works conducted in December 2003 and September 2005 involving the excavation of approximately 1,982 cubic metres of soil from the Station R area. Further excavations could not be completed due to the underlying limestone geology and close proximity of existing infrastructure. Residual hydrocarbons have been detected in limestone below the Station R area. Validation samples collected following remedial excavations identified the presence of petroleum hydrocarbons and the metal chromium at concentrations exceeding Ecological Investigation Levels.

Groundwater investigations identified petroleum hydrocarbons in groundwater beneath the Station R area. Further groundwater investigations are required to determine the nature and extent of hydrocarbon contamination in groundwater in the vicinity of Station R.

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Satellite Station R - Current Status

The department understands that an auditor has been appointed and that soil and groundwater investigations completed. Reports have been submitted to the auditor and a MAR is being prepared for submission to the Department.

Water Flood Stations No. 1, 3 and 5

A contamination assessment was conducted at three water flood stations to assess potential impacts to soil and groundwater from these decommissioned stations. These three water flood stations form part of a closed network of water extraction and water injection wells used for increasing oil production on Barrow Island. Preliminary investigations have identified that petroleum hydrocarbons and contamination associated with corrosion inhibitors and drilling mud may be present in soil and groundwater at each water flood station.

Water Flood Stations No. 1, 3 and 5 - Current Status

Further soil and groundwater investigations are required to determine the nature and extent of potential contamination in soil and groundwater at the former water flood stations 1, 2, 3,5 and 7 including the development of an appropriate risk assessment and if required a RAP.

The department understands that an auditor has been engaged for flood station 2 and that a preliminary site investigation and detailed site investigation have been completed and submitted to the auditor.

An auditor has been engaged for flood station 7 and a preliminary site investigation and detailed site investigation completed and submitted to the auditor.

Airport Facility

A contamination assessment was conducted on the Barrow Island Airport Facility following the detection of aviation fuel losses in 1997. Subsequent investigations identified a PSH plume present beneath the airport apron and a dissolved phase hydrocarbon plume adjacent to the main aircraft hangar. Hydrocarbons were also detected in groundwater in the vicinity of the main airport facility buildings.

A hydrocarbon recovery system was trialled at the airport between 1998 and 2001 and approximately 6,000 litres of aviation fuel was recovered during this time. A SMP was developed for the site which outlined a proposed PSH recovery system and an ongoing groundwater investigation and monitoring program to confirm the extent of groundwater contamination at the site and potential impacts to the marine environment.

Between 2003 and 2013 a number of site investigations were undertaken and the SMP was refined to effectively monitor contamination and mitigate potential exposure risks at the site. These investigations included the further characterisation of the nature and extent of groundwater contamination following tropical rainfall events in 2011.

Airport Facility - Current Status

Ongoing groundwater monitoring is required at the airport site to comply with both the requirements of

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a licence issued under the EP Act [L4467/1972/14] as well as the requirements of the CS Act.

A contaminated sites auditor undertook a review of the investigation and monitoring reports prepared for the airport site and a MAR was submitted to the department in 2013. The auditor considered in their MAR that contamination at the airport had been adequately characterised and that the reported information was complete, accurate and compliant with the current regulatory requirements.

The auditor was satisfied that the identified hydrocarbon plume in groundwater was either stable or contracting and that there was evidence that natural attenuation was occurring. The auditor was also satisfied that the proposed groundwater monitoring network was adequate for the ongoing monitoring and assessment of groundwater at the site and that the SMP prepared for the site was also adequate for the monitoring and ongoing assessment of hydrocarbon impacts and natural attenuation at the site.

WAPET Landing South

WAPET (former Western Australian Petroleum Pty Ltd) Landing South is a cleared area of land within the northern portion of Barrow Island which has historically been used for activities related to oil and gas production and has also been identified as being impacted by asbestos contamination. Asbestos is known to have been used on Barrow Island between the 1950s and 1970s as an additive in drilling fluids to prevent circulation loss during drilling. The introduction of asbestos to WAPET Landing South is considered likely to have occurred as a result of the storage and handling of asbestos and asbestos-containing material (ACM) at the site.

A program of asbestos removal was undertaken at the site from 2009 to 2015. A number of plans have been developed to manage and remediate asbestos impacts at the WAPET Landing South which have been reviewed by an accredited contaminated sites auditor and the department and Department of Health. A program of remediation which has included the demolition and removal of asbestos and ACM clad structures, excavation and vacuuming of free asbestos fibres and off-site-disposal of more than 5,000 drums of asbestos and asbestos impacted soils has been undertaken at the site. Extensive air monitoring and reporting of monitoring has also being undertaken as part of the remedial works.

WAPET Landing South - Current Status

The WAPET Landing South is currently unused, access is restricted and warning signage is erected across the site. Site management activities to mitigate potential exposure risks and further remediation of asbestos continues at the site. At the completion of remediation, a remediation and validation report and MAR will be provided to the department for review.

Background conditions

Investigations have indicated that concentrations of some metals in groundwater and soils that have been identified to exceed ecological investigation levels, may be representative of naturally occurring background conditions. A program of investigating ambient background conditions across Barrow Island has been implemented.

As multiple locations across the Barrow Island site are contaminated and remediation is required to reduce risks to human health, the environment and environmental values to acceptable levels, and remedial works are in progress but not yet complete at multiple sites, the site is classified as 'contaminated - remediation required'.

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A memorial stating the site's classification has been placed on the certificate of title, and will trigger the need for further investigations and risk assessment should the site be proposed for a more sensitive land use.

The department, in consultation with the Department of Health, has classified this site based on the information available to the department 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 the department, and as such, the usefulness of this information may be limited.

Other Relevant Information:

Additional information included herein is relevant to the contamination status of the site and includes the department's expectations for action that should be taken to address potential or actual contamination described in the Reasons for Classification.

Contamination present at this site has been determined to present particularly complex technical issues. In accordance with regulation 31(1)(d)(i)(iii), the department has requested that MAR's are provided for each contaminated sites program undertaken at the site. Regulation 31(1)(d)(i)(iii) states that a MAR is to be provided at the written request of the CEO, where in the opinion of the CEO a site represents particularly complex technical issues; or is required to enable the site to be dealt with for the purposes of the CS Act.

Where the land is part of a transaction - sale, mortgagee or lease agreement, the land owners MUST PROVIDE WRITTEN DISCLOSURE (on the prescribed Form 6) of the site's status to any potential owner, mortgagee (e.g financial institutions) or lessee at least 14 days before the completion of the transaction. A copy of the disclosure must also be forwarded to the department.

Action Required:

This site is considered to be high priority for action to be taken to address contamination. Annual updates including MAR's are required to be provided to the department setting out the progress of contamination investigations and remediation activities across the site.

Further information and possibly additional investigations are required to assess the presence of perfluoroalkyl and polyfluoroalkyl substances' (PFAS), which are potential contaminants of concern associated with oil and gas fire suppression and training facilities, wastewater treatment and disposal and landfills, as specified in 'PFAS National Environmental Management Plan Version 2.0' (Heads of EPAs Australia and New Zealand, January 2020).

All investigations and assessments are to be carried out in accordance with the department's Contaminated Sites Guidelines and the 'National Environment Protection (Assessment of Site Contamination) Measure 1999' (the NEPM). PFAS investigations and assessment are also to be carried out in accordance with the 'PFAS National Environmental Management Plan Version 2.0' (Heads of EPAs Australia and New Zealand, January 2020) (or subsequent versions of the plan).

Certificate of Title Memorial	Under the Contaminated Sites Act 2003, this site has been classified as "Contaminated - remediation required". For further information on the contamination status of this site, please contact the Contaminated Sites Branch of the Department of Environment & Conservation.

Contaminated Sites Act 2003
Basic Summary of Records Search Response

Report generated at 05:34:04AM, 06/06/2025

Current Regulatory Notice Issued	**Type of Regulatory Notice:** *Nil* **Date Issued:** *Nil*
General	No other information relating to this parcel.