

Victorian Desalination Project



Environmental Management Plan Attachment 4 – Environmental Monitoring Schedule

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ATTACHMENT 4 – ENVIRONMENTAL MONITORING SCHEDULE

This Environmental Monitoring Schedule includes only environment-specific monitoring programs. The monitoring associated with O&M activities of the Desalinated Water Supply System is integrated into the relevant O&M Manuals, including for the mechanical, electrical, chemical and control systems.

Type	Purpose	Scope	Monitoring Objectives and Targets	Monitoring Methodology	Responsibility	Frequency
Marine – Operational Marine Monitoring Program (OMMP)						
Plant and diffuser performance, water quality parameters, marine ecology, and coastal processes.	To monitor plant and diffuser performance, water quality parameters and ecological components of the marine and coastal environment and where appropriate provide mechanisms in order to manage the spatial extent and levels of impact attributable to the operation of the VDP.	<p>Monitoring plant and diffuser performance, water quality parameters and ecological components of the receiving environment.</p> <p>Impact assessment of the receiving environment.</p> <p>Where applicable, management of the intake of seawater and discharge of brine and other liquid waste streams to the marine environment.</p>	<p>To monitor compliance with relevant requirements of:</p> <ul style="list-style-type: none"> EPA Waste Discharge Licence. Project Deed Performance Requirements. 	In accordance with the OMMP.	Environment Manager & Operations Manager	In accordance with the OMMP.
Land Quality						
Land quality monitoring.	To prevent pollution by ensuring early detection of any signs of land contamination or acidification.	<p>If required, in response to confirmed release of potential land pollutants to the environment.</p> <p>If required, in response to major earthworks requiring disturbance of actual or potential acid sulfate soil.</p>	<p>To monitor compliance with relevant requirements of:</p> <ul style="list-style-type: none"> <i>State Environment Protection Policy (Prevention and Management of the Contamination of Land)</i> No. S95. <i>Industrial Waste Management Policy (Waste Acid Sulfate Soils)</i>. EPA Waste Discharge Licence. 	<p><i>National Environment Protection (Assessment of Site Contamination) Measure.</i></p> <p>EPA Publication 655: <i>Acid Sulfate Soil and Rock.</i></p> <p>EPA Publication 840: <i>The Clean Up and Management of Polluted Groundwater.</i></p> <p>EPA Publication 669: <i>Groundwater Sampling Guidelines.</i></p>	Environment Manager	If required, in response to major earthworks and/or in response to confirmed release of potential land pollutants to the environment.

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			<ul style="list-style-type: none"> Project Deed Performance Requirements. 	EPA Publication IWRG701: <i>Sampling and Analysis of Waters, Wastewaters, Soils and Wastes.</i>		
Groundwater Quality						
Groundwater quality monitoring.	To prevent pollution by ensuring early detection of any signs of groundwater contamination.	<p>If required, in response to confirmed release of potential groundwater pollutants to the environment.</p> <p>If required, in response to major earthworks requiring disturbance of actual or potential acid sulfate soil.</p>	<p>To monitor compliance with relevant requirements of:</p> <ul style="list-style-type: none"> <i>State Environment Protection Policy (Waters)</i> No. S493, as varied. <i>Industrial Waste Management Policy (Waste Acid Sulfate Soils).</i> EPA Waste Discharge Licence. Project Deed Performance Requirements. 	<p><i>National Environment Protection (Assessment of Site Contamination) Measure.</i></p> <p>EPA Publication 655: <i>Acid Sulfate Soil and Rock.</i></p> <p>EPA Publication 840: <i>The Clean Up and Management of Polluted Groundwater.</i></p> <p>EPA Publication 669: <i>Groundwater Sampling Guidelines.</i></p> <p>EPA Publication IWRG701: <i>Sampling and Analysis of Waters, Wastewaters, Soils and Wastes.</i></p>	Environment Manager	If required, in response to major earthworks and/or in response to confirmed release of potential groundwater pollutants to the environment.
Surface Water Quality						
Surface water quality monitoring.	To prevent pollution by ensuring early detection of any signs of surface water contamination and/or acidification.	If required, in response to confirmed release of potential surface water pollutants to the environment.	<p>To monitor compliance with relevant requirements of:</p> <ul style="list-style-type: none"> <i>Water Act 1989.</i> <i>State Environment Protection Policy (Waters)</i> No. S498, as varied. <i>Industrial Waste Management Policy (Waste Acid Sulfate Soils).</i> 	EPA Publication IWRG701: <i>Sampling and Analysis of Waters, Wastewaters, Soils and Wastes.</i>	Environment Manager	In accordance with EPA Discharge Licence and SEPP (Waters).

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			<ul style="list-style-type: none"> EPA Waste Discharge Licence. Project Deed Performance Requirements. 			If required, in response to confirmed release of potential surface water pollutants to the environment.
Air Quality						
Air quality monitoring.	To prevent pollution by ensuring early detection of any signs of air quality degradation.	<p>If required, in response to confirmed release of potential air pollutants to the environment.</p> <p>If required, in response to a confirmed air quality complaint that has been received within a distance from O&M activities that levels of disturbance are possible.</p>	<p>To monitor compliance with relevant requirements of:</p> <ul style="list-style-type: none"> <i>State Environment Protection Policy (Air Quality Management)</i>, No. S240. <i>State Environment Protection Policy (Ambient Air Quality)</i> No. S19. <i>Environment Protection (Vehicle Emissions) Regulations 2013</i>. EPA Waste Discharge Licence. Project Deed Performance Requirements. 	<p>EPA Publication 440 – <i>A guide to the sampling and analysis of air emissions and air quality</i>.</p> <p>EPA Publication 1666 – <i>Determination of odour concentration by dynamic olfactory</i>.</p> <p>Australian Standard 3580.1.1 – <i>Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment</i>.</p>	Environment Manager	If required, in response to confirmed release of potential air pollutants to the environment, and/or a confirmed complaint
Environmental Performance Inspection						
Ecological Reserve monitoring and inspection.	To minimise adverse environmental effects by monitoring reserve amenity and environmental values.	Monitor litter, weeds and pests and known sensitive locations, including cultural heritage, flora and fauna.	<p>To monitor compliance with relevant requirements of:</p> <ul style="list-style-type: none"> <i>Environment Protection and Biodiversity Conservation Act 1999</i>. <i>Flora and Fauna Guarantee Act 1988</i>. 	In accordance with site environmental inspection checklist.	Environment Manager	Monthly

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			<ul style="list-style-type: none"> • <i>Catchment and Land Protection Act 1994.</i> • <i>Plant Biosecurity Act 2010.</i> • Project Deed Performance Requirements. 			
Desalination Plant monitoring and inspection.	To minimise adverse environmental effects by monitoring amenity and environmental values.	Monitor litter, weeds and pests, spill kits and known sensitive locations, including cultural heritage, flora and fauna.	<p>To monitor compliance with relevant requirements of:</p> <ul style="list-style-type: none"> • <i>Environment Protection and Biodiversity Conservation Act 1999.</i> • <i>Flora and Fauna Guarantee Act 1988.</i> • <i>Catchment and Land Protection Act 1994.</i> • <i>Plant Biosecurity Act 2010.</i> • EPA Waste Discharge Licence. • Project Deed Performance Requirements. 	In accordance with site environmental inspection checklist.	Environment Manager	Monthly
Transfer Pipeline monitoring and inspection.	To minimise adverse environmental effects by monitoring amenity and environmental values.	Monitor litter, weeds and pests, spill kits and known sensitive locations, including cultural heritage, flora and fauna.	<p>To monitor compliance with relevant requirements of:</p> <ul style="list-style-type: none"> • <i>Environment Protection and Biodiversity Conservation Act 1999.</i> • <i>Flora and Fauna Guarantee Act 1988.</i> • <i>Catchment and Land Protection Act 1994.</i> • <i>Plant Biosecurity Act 2010.</i> • <i>Wildlife Act 1989.</i> • Project Deed Performance Requirements. 	In accordance with site environmental inspection checklist.	Environment Manager	Monthly

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Flora and Fauna						
Terrestrial biodiversity and biosecurity.	To minimise adverse environmental effects upon terrestrial biodiversity attributable to project activities by monitoring loss or impact of native flora and fauna due to damage or removal and/or the transmission of weeds, pests or diseases within the desalination plant, ecological reserve and pipeline easement.	If required in response to major earthworks potentially leading to adverse impacts upon sensitive flora and fauna.	To monitor compliance with relevant requirements of: <ul style="list-style-type: none"> • <i>Environment Protection and Biodiversity Conservation Act 1999.</i> • <i>Flora and Fauna Guarantee Act 1988.</i> • <i>Catchment and Land Protection Act 1994.</i> • <i>Plant Biosecurity Act 2010.</i> • <i>Wildlife Act 1989.</i> • Project Deed Performance Requirements. 	<p>Agriculture Victoria, <i>Pests, diseases and weeds</i> (http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds)</p> <p>Agriculture Victoria, <i>Potato Cyst Nematode</i>, Agriculture Note No. AG0572.</p> <p>O’Gara, E et al (2005) Management of <i>Phytophthora cinnamomi</i> for Biodiversity Conservation in Australia: Part 2 – National Best Practice Guidelines. A report funded by the Commonwealth Government Department of the Environment and Heritage by the Centre for <i>Phytophthora</i> Science and Management, Murdoch University, Western Australia.</p> <p>Commonwealth of Australia (2015), <i>Arrive Clean, Leave Clean.</i></p>	Environment Manager	If required in response to major earthworks.

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Marine biodiversity and biosecurity	To minimise adverse environmental effects upon marine biodiversity attributable to project activities by monitoring loss or impact of native marine flora and fauna due to damage or removal and/or the transmission of weeds, pests or diseases within the project marine waters.	Monitor vessels and marine equipment required for O&M activities within VDP project waters.	To monitor compliance with relevant requirements of: <ul style="list-style-type: none"> State Environment Protection Policy (Waters), No S499, as varied. Biosecurity Management Act 2015. Fisheries Act 1995. EPA Waste Discharge Licence. Project Deed Performance Requirements. 	DAFF (2005) <i>Draft Australian Emergency Marine Pest Plan. Control Centres Management Manual</i> DPI (2009) <i>Biosecurity Control Measures for Abalone Viral Ganglioneuritis: A Code of Practice</i> DAWR <i>Australian Ballast Water Management Requirements</i> ENV-000-PR-001 Marine Biosecurity Procedure	Environment Manager	Prior to and during marine activities.
Rehabilitation monitoring.	To minimise adverse environmental effects by monitoring rehabilitation, including reinstatement, weed and pest control	If required following major earthworks in accordance with property specific rehabilitation plan.	To monitor compliance with relevant requirements of: <ul style="list-style-type: none"> Property-specific rehabilitation plans. Project Deed Performance Requirements. 	DSE (2006) <i>Native Vegetation – Revegetation Planting Standards.</i>	Environment Manager	If required in response to major earthworks.
Noise and vibration						
Noise & Vibration Monitoring.	To ensure activities are managed in an environmentally sensitive manner by responding to complaints	If required, in response to a noise complaint that has been received within a distance from O&M activities that audible levels of noise disturbance are possible	To monitor compliance with relevant requirements of: <ul style="list-style-type: none"> State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 No. S31. EPA Waste Discharge Licence. Project Deed Performance Requirements. 	EPA Publication 280: <i>A Guide to the Measurement and Analysis of Noise.</i> Australian Standard AS 1055:2018 <i>Acoustics – Description and measurement of environmental noise.</i>	Environment Manager	If required, in response to a complaint

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O&M activities – Construction works necessary for O&M activities						
Any monitoring identified in environmental approvals, including relevant Project Deed Performance Requirements.	To minimise adverse environmental effects by monitoring construction works necessary for O&M activities, such as: <ul style="list-style-type: none"> cultural heritage flora and fauna groundwater land contamination and/or acidification (acid sulfate soils) surface water quality marine biosecurity and biodiversity terrestrial biosecurity and biodiversity 	Any construction works necessary for O&M activities	To monitor compliance with relevant requirements of: <ul style="list-style-type: none"> Relevant environmental legislation. Any environmental approvals relevant to the works. Project Deed Performance Requirements. 	As relevant for the identified environmental approvals and in accordance with the relevant Project Deed Performance Requirements	Environment Manager	As relevant for the identified environmental approvals and in accordance with the relevant Project Deed Performance Requirements
Resource efficiency						
Energy, water, chemical and waste monitoring	To conserve resources and reduce waste by monitoring resource use efficiency. To report on waste production and resource consumption for Project and regulatory compliance.	Monitor and report on compliance, waste generation and resource consumption against resource efficiency indicators in accordance with the EMP, EPA Waste Discharge Licence, National Pollutant Inventory and National Greenhouse & Energy Reporting Scheme requirements.	To monitor and report compliance with relevant requirements of: <ul style="list-style-type: none"> National Pollutant Inventory (NPI). National Greenhouse & Energy Reporting Scheme (NGERS). EPA Waste Discharge Licence. Project Deed Performance Requirements. ENV-000-PL-008 Environmental Action Plan – Resources and Waste Management. 	National Pollutant Inventory Guide. National Greenhouse and Energy Reporting (Measurement) Systems and Technical Guidelines (Department of Water Climate Change). EPA Publication IWRG631: <i>Solid industrial waste hazard categorisation and management</i> . EPA Publication IWRG701: <i>Sampling and Analysis of Waters, Wastewaters, Soils and Wastes</i> .	Environment Manager	Monthly

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Waste hazard categorisation and management monitoring	To monitor compliance with relevant waste hazard categorisation and management requirements.	Waste characterisation assessment and quality monitoring	To monitor compliance with relevant requirements of: <ul style="list-style-type: none"> Relevant waste hazard categorisation and management requirements in the <i>Environment Protection Act 1970</i> and associated subordinate legislation and guidance. Project Deed Performance Requirements. 	EPA Publication IWRG631: <i>Solid industrial waste hazard categorisation and management</i> . EPA Publication IWRG701: <i>Sampling and Analysis of Waters, Wastewaters, Soils and Wastes</i> .	Environment Manager	In accordance with EPA Industrial Waste Resource Guidelines.
Pre-treatment process sludge quality	To monitor compliance with relevant waste hazard categorisation and management requirements.	Pre-treatment process sludge quality monitoring.	To monitor compliance with relevant requirements of: <ul style="list-style-type: none"> Relevant waste hazard categorisation and management requirements in the <i>Environment Protection Act 1970</i> and associated subordinate legislation and guidance. Project Deed Performance Requirements. 	EPA Publication IWRG631: <i>Solid industrial waste hazard categorisation and management</i> . EPA Publication IWRG701: <i>Sampling and Analysis of Waters, Wastewaters, Soils and Wastes</i> .	Environment Manager	In accordance with EPA Industrial Waste Resource Guidelines.
Wombat health.	To minimise adverse health effects in ecological reserve wombat population due to infection by mange mite (<i>Sarcoptes scabiei</i>).	If required, in response to a confirmed sighting of a mange affected wombat in the Ecological Reserve.	To identify and treat mange affected wombats resident within the Ecological Reserve.	Mange Management Treatment Methods (http://mangemanagement.org.au/treatment-methods/)	Environment Manager	If required, in response to a confirmed sighting of mange affected wombat in the Ecological Reserve.