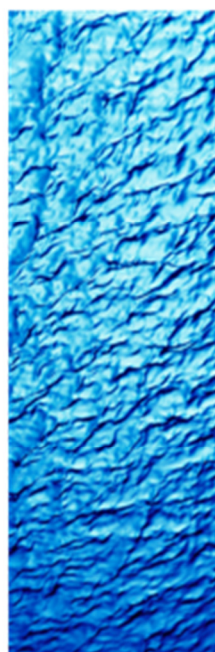


Victorian Desalination Project



Commissioning Environmental Sub-Plan Attachment I.2.2 – Pre-Treatment Management Strategy

DOCUMENT NUMBER					
TDV	0	EV	SB	0021.I2.2	03

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Definitions and Acronyms

The following Definitions and Acronyms are used in this document:

CESP	Commissioning Environmental Sub Plan
CWMS	Construction Work Method Statements
CWP	Commissioning Work Package
D&C	Design and Construct Phase of the Victorian Desalination Project
DMPF	Dual media pressure filter
DSE	Department of Sustainability and Environment
DPI	Department of Primary Industries
EIRP	Environmental Incident Response Plan
Emergency Response Services	May, as appropriate, mean police, ambulance, fire brigades, state emergency services, hospitals or other specialist groups
EMP	Environmental Management Plan
EMR	Environmental Management Representative
EMS	Environmental Management System
Environmental Hazard	means a state of danger to human beings or the environment whether imminent or otherwise resulting from the location, storage or handling of any substance having toxic, corrosive, flammable, explosive, infectious or otherwise dangerous characteristics (s.4, <i>Environment Protection Act 1970</i>)
Environmental Incident	Any event that causes, has caused or has the potential to cause an Environmental Hazard or Pollution (from section 4, Appendix S3, PS&PR). [Please see the definition of <i>Environmental Hazard</i> . Please see the definitions of <i>Pollution of Atmosphere</i> , <i>Pollution of Land</i> and <i>Pollution of Waters</i> for the legislative definitions of ‘Pollution’ in Victoria.]
EO	Environmental Officer
EPA	Victorian Environment Protection Authority
JHA	Job Hazard Analysis
JSEA	Job Safety and Environmental Analysis
O&M	Operation and Maintenance Phase of the Victorian Desalination Project
OHS	Occupational Health and Safety
Performance Criteria	The Performance Criteria outline the overarching requirements based on the environmental objective for each Subject Area of Schedule A of Appendix S3 of the Project Scope and Project Requirements
Plant site	Victorian Desalination Project Wonthaggi Plant site
Pollution of Land	A person shall not pollute land so that the condition of the land is so changed as to make or be reasonably expected to make the land or the produce of the land— (a) noxious or poisonous; (b) harmful or potentially harmful to the health or welfare of human beings; (c) poisonous, harmful or potentially harmful to animals, birds or wildlife; (d) poisonous, harmful or potentially harmful to plants or vegetation;

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	<p>(e) obnoxious or unduly offensive to the senses of human beings; or</p> <p>(f) detrimental to any beneficial use made of the land.</p> <p>(s.45, Environment Protection Act 1970)</p>
Pollution of Waters	<p>A person shall not pollute any waters so that the condition of the waters is so changed as to make or be reasonably expected to make those waters—</p> <p>(a) noxious or poisonous;</p> <p>(b) harmful or potentially harmful to the health, welfare, safety or property of human beings;</p> <p>(c) poisonous, harmful or potentially harmful to animals, birds, wildlife, fish or other aquatic life;</p> <p>(d) poisonous, harmful or potentially harmful to plants or other vegetation; or</p> <p>(e) detrimental to any beneficial use made of those waters.</p> <p>(s.39, Environment Protection Act 1970)</p>
PS&PR	Project Scope and Project Requirements
RO	Reverse Osmosis
SEPP	State Environment Protection Policy
SEWPAC	Department of Sustainability, Environment, Water, Population and Communities
SWLP	Sea Water Lift Pumps
VDP	Victorian Desalination Project

1 Purpose

This Pre-Treatment Commissioning Management Strategy describes the activities required to commission the Screen and Feed Pump Station and Dual media pressure filter, identifies the key environmental risks associated with these activities, and provides appropriate control, management and mitigation measures.

This commissioning management strategy must be read in conjunction with the Environmental Management System (EMS) Manual, the D&C Environmental Management Plan (D&C EMP), the D&C Plant and General Area EMP and the D&C Marine area EMP. This commissioning management strategy forms an attachment to the Commissioning Environmental Sub Plan and addresses relevant requirements listed in the Environmental Compliance Tracker (TDV-0-EV-RP-0001-01), including any licence conditions, Performance Requirements (PRs), Performance Criteria (PC) and other obligations relating to Pre-Treatment Commissioning.

Specific management measures from this commissioning management strategy have been incorporated into Commissioning Work Area Packages (CWAPs) and Commissioning Work Packs (CWPs) which include Work Method Statements (WMS) and Job Safety and Environmental Analysis (JSEA's) where applicable.

The following sub-plans will be implemented in conjunction with this plan:

- D&C Plant and General Area Environmental Management Plan Attachment I2 – Hazardous Materials Sub Plan (TDV-0-EV-SB-0011.I2-02)
- D&C Plant and General Area Environmental Management Plan Attachment I4 – Air Quality Sub Plan (TDV-0-EV-SB-0011.I2-02)
- Plant & General Area D&C Environmental Management Plan Attachment I8 – Noise and Vibration Sub Plan (TDV-0-EV-SB-0011.I8-02)
- D&C Marine Area Environmental Management Plan Attachment I1 – Coastal Processes and Activities Sub Plan (TDV-0-EV-SB-0013.I1-03)
- D&C Marine Area Environmental Management Plan Attachment I2 – Hazardous Materials Sub Plan (TDV-0-EV-SB-0013.I2-03)

2 Scope

The commissioning of the Screen and Feed Pump Station and Dual media pressure filter (DMPF) is the second in a cumulative commissioning sequence for the Desalinated Water Supply System, involving:

1. intake and discharge of seawater through the marine tunnels and seawater lift pump station (fully commissioned during Marine Tunnels and Sea Water Lift Pump Station Commissioning Strategy (Attachment I.2.1)
2. pre-treatment including coarse screening at the screen and pump station, and filtration through the dual media pressure filters (covered by this Commissioning Management Strategy)
3. the reverse osmosis and potabilisation of desalinated of water
4. desalinated water production commissioning, brine discharge, using the treated water storages, transfer pump station and transfer pipeline.

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The Pre-treatment commissioning commences when seawater is fed from the Seawater Lift Pumps to the Screen and Feed Pump Station. At the completion of the commissioning of Stream 1 (i.e., when filtered water passes from the DMPF to the Reverse Osmosis (RO) system, this Management Strategy ceases temporarily and the Reverse Osmosis and Potabilisation Management Strategy becomes operational. This Management Strategy is re-activated during the commissioning of the Overall Systems of the plant (Attachment I.2.4), during which time the commissioning of DMPF streams 2 and 3 will occur in parallel. This will continue until all three streams of the DMPF are commissioned. The commissioning of each DMPF stream allows commissioning to commence in the corresponding reverse osmosis stream.

The location of the Screen and Feed Pump Station, the Dual media pressure filter and Sludge Treatment is shown in Figure 1.

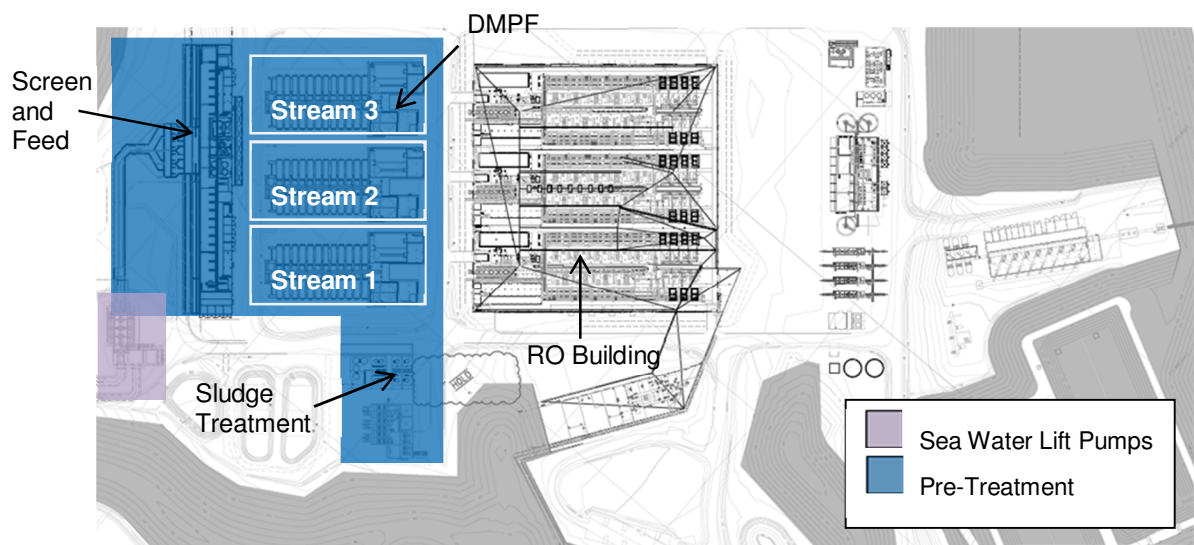


Figure 1: Location of the Pre-treatment Commissioning

(Screen and Feed Pump Station, Dual media pressure filter and Sludge Treatment)

3 Objectives and Targets

The objective of this commissioning management strategy is to ensure appropriate controls are in place to minimise impacts from the Pre-treatment commissioning and to ensure project objectives, targets and obligations, including PRs and associated criteria, are met.

3.1 Performance and Requirements

Table 1 outlines the relevant management objectives and targets for the commissioning of the pre-treatment system. Numbered entries are applicable performance requirements taken from Schedule A of Appendix S3 of the Project Deed. Non-numbered entries in Table 1 have been identified through earlier rounds of agency consultation.

Table 1: Environmental objectives, targets and performance requirements

Subject	Objective / Performance Criteria	Target / Performance Requirements
Hazardous materials and dangerous goods	<p>Protect beneficial uses of air, land, water, human and environmental health, from the impacts of hazardous materials and dangerous goods.</p> <p>Manage, store, handle and dispose any hazardous substances and dangerous goods in accordance with relevant policies, regulations and guidelines including the Victorian WorkCover Authority and Australian Standard AS1940 Storage and Handling of Flammable and Combustible Liquids, EPA Best Practice Environmental Management - Environmental Guidelines for Major Construction Sites (1996) and EPA Publication 347 - (Bunding Guidelines) (PR#19126)</p> <p>Minimise the use of chemicals during project activities</p> <p>Minimise adverse effects of chemicals on the receiving environment (PR#12089)</p>	<p>Develop and implement methods and management systems (including contingency plans) that:</p> <ul style="list-style-type: none"> Limit the on-site storage and/or use of hazardous substances and dangerous goods Manage hazardous materials and dangerous goods to avoid environmental damage Install bunds (if appropriate) and take precautions to reduce the risk of spills entering the storm water drainage system Seek to contain any spills captured by the storm water drainage system (PR#19128) <p>Design the pre-treatment, desalination and potabilisation systems to minimise chemical usage and to select chemical products that are proven to have minimal adverse effect on the receiving environment. (PR#12091)</p> <p>No unauthorised offsite discharge of hazardous materials.</p>
Air quality – odour and emissions	<p>Protect air quality</p> <p>Limit odour emissions from Desalination Plant operations (PR#23152)</p> <p>Compliance with the State Environment Protection Policy (Air Quality Management) and State Environment Protection Policy Ambient Air Quality (PR#23153)</p> <p>Comply with the EPA Works Approval (PR#23154)</p>	<p>Develop and implement methods and management systems consistent with State Environment Protection Policy (Air Quality Management) and State Environment Protection Policy (Ambient Air Quality) to limit odour and emissions from the commissioning and operation of the Desalination Plant and ensure no offensive odours beyond the boundary of the premises (PR#23156)</p>
Airborne Noise	<p>Protect neighbourhood amenity</p> <p>Minimise impacts from airborne noise (PR#24158)</p> <p>Comply with EPA N3/89 during day and evening, and with State Environment Protection Policy N1 at night-time for the</p>	<p>Monitor and report on airborne noise levels (PR#24164)</p>

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Subject	Objective / Performance Criteria	Target / Performance Requirements
	Leased Area (PR#24158) .	
Waterways and wetlands	Maintain the environmental values of waterways and wetlands (PR#07060)	Develop and implement methods and management systems to limit impacts on waterways and wetlands during commissioning and operation. (PR#07063.1)
Marine flora and fauna – outlet	<p>Minimise impacts on marine flora and fauna from and operation of Outlet structure</p> <p>Minimise impact on Bunurong Marine National Park and on the protected values of marine parks</p> <p>Minimise impact on ecosystem integrity Comply with State Environment Protection Policy (Waters of Victoria).</p> <p>No observable accumulation of solid matter or staining on the beach (PR#33208)</p>	Meet the requirements of the EPA with regard to the Works Approval Application and discharge licence (PR#33210)
Marine flora and fauna – intake	<ul style="list-style-type: none"> Minimise impacts on marine flora and fauna from intake structure Minimise impact on Bunurong Marine National Park and on the protected values of marine parks Prevent entry of penguins and other diving birds into the intake structure. Limit entrainment of marine biota (PR#32202) 	Monitor and report on possible effects of entrainment on marine biota including changes to recruitment and marine community structure and demonstrate compliance with the relevant performance criteria (PR#32207)
Marine Pests	Avoid the introduction, spread and establishment of marine pests in compliance with the Commonwealth and State legislative requirements for Ballast Water (PR#36226)	<p>Develop and implement a marine pest risk management and monitoring process (PR#36228)</p> <p>Develop and implement a risk management process specifically for limiting risk of abalone disease (PR#36229)</p>
Waste - general	<p>Manage waste from the commissioning phase of the Project consistent with the requirements of the Government/EPA Waste Management Policies.</p> <p>Minimise waste through the adoption of best practice waste reduction and disposal procedures consistent with the EPA waste hierarchy (PR#20130)</p>	<p>In assessing waste management options, adopt the following order of preference:</p> <ul style="list-style-type: none"> Waste avoidance and/or reduction Waste reuse, recycling and reclamation Waste treatment Waste disposal (PR#20133).

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Subject	Objective / Performance Criteria	Target / Performance Requirements
Marine amenity – recreational	Minimise disruption to marine recreational activities Outside any marine exclusion zone (for diving safety) no significant impact on diving, surfing, recreational fishing or marine boating activities (PR#34219)	Turbidity or colouration impacts from the outlet should not be visible from the shoreline (PR#34222) .
Coastal Integrity	Protect the physical integrity of the dune system, beach and intertidal zone. (PR#29191)	Monitor and report the effect of Project Activities on the dune system, beach and intertidal zone. (PR#29191)

3.2 Required Standards

This sub plan has been developed in accordance with the following legislation and standards:

- Health and Safety Act, (2004)
 - Occupational Health and Safety Regulations, 2007
 - Occupational Health and Safety (Hazardous Substances) Regulations 1999
- Dangerous Goods Act, (1985)
 - Occupational Health and Safety (Asbestos) Regulations 2003 (Victoria).
 - Dangerous Goods (Storage and Handling) Regulations 2000
 - Code of Practice for the Storage and Handling of Dangerous Goods, No. 27, 2000
- Pollution of Waters by Oil and Noxious Substances Act, (1986)
 - Pollution of Waters by Oil and Noxious Substances Regulations 2002
- Environment Protection Act, (1970)
 - State Environment Protection Policy (Waters of Victoria) (SEPP WoV)
 - State Environment Protection Policy (Air Quality Management) (SEPP AQM)
 - State Environmental Protection Policy (Ambient Air Quality) (SEPP AAQ)
 - Environment Protection (Environment and Resource Efficiency Plans) Regulations 2007
 - Environment Protection (Industrial Waste Resource) Regulations 2009
 - State Environment Protection Policy (Groundwaters of Victoria) (SEPP GOV)
- Environment Protection and Biodiversity Conservation Act (1999)
- Flora and Fauna Guarantee Act (1998)
- Protection of the Sea (Harmful Anti-fouling Systems) Act, (2006)
- Australian Dangerous Goods (ADG) Code 7th edition

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- EPA Best Practice Environmental Management – Environmental Guidelines for Major Construction Sites 1996
- EPA Publication 347 – Bunding Guidelines
- EPA publication IWRG631 – Solid Industrial Waste Hazard Categorisation and Management, 2009
- EPA Publication 996 – Guidelines for hazard classification of solid prescribed industrial wastes
- International Safety Management (ISM) Code 2002
- National Environment Protection Measure (Movement of Controlled Waste Between States and Territories) 2004
- National Environment Protection Measure (Used Packaging Materials) 1998
- Protocol for Environmental Management - Greenhouse Gas Emissions and Energy Efficiency in Industry (EPA Victoria), 2006

4 Legal, Regulatory, Licence, Permits and Approvals Requirements

This commissioning management strategy has been developed in accordance with the following requirements:

- water will be discharged in accordance with the EPA Works Approval Report 2.2 and 2.3
- discharge will occur in accordance with EPA Section 30A Commissioning Approval requirements

The applicable PRs from the Project Deed Schedule A of Appendix S3 are provided in Table 1. The requirements of any permits, licences and approvals obtained will be placed in the Environmental Licence, Permit and Approval Register on receipt and updated in the Environmental Compliance Tracker.

5 Commissioning Process

The Pre-treatment Commissioning involves the commissioning of the Screen and Feed system, the Dual media pressure filter and the Sludge Treatment system. Initially Stream 1 is commissioning subsequent to the commissioning of the sea water lift pump station and prior to commissioning of the RO system. Stream 2 and Stream 3 are commissioning in parallel with the commissioning of the overall plant systems (Attachment I.2.4). The following is relevant to the Pre-Treatment Commissioning:

- Prior to commissioning with chemicals, all “chemical pipes” will be commissioned with mains water. This activity occurs prior to implementation of the CESP.
- The chemicals used during Pre-treatment commissioning include:
 - Ferric Sulphate (COMM 021 & COMM 020)
 - Sulphuric Acid (COMM 019)

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- Sodium Hypochlorite (COMM 017 & COMM 018)
- Coagulant Aid (COMM 022)
- Sodium Bisulphite (COMM 023)
- The commissioning of the pre-treatment system is set out in more detail within the following Commissioning Work Packages (CWPs):
 - Drum Screens (COMM 002)
 - DMPF Feed Pumps (COMM 003)
 - DMPF Stream 1 (COMM 004)
 - DMPF Stream 2 (COMM 005)
 - DMPF Stream 3 (COMM 006)
 - Sludge Treatment (COMM 035)
- Pre-treatment commissioning will not produce any brine. It will produce filtered sea water (including neutralised chemicals) that will be discharged to the outlet.
- The sludge treatment plant will be commissioned in parallel with the Screen and Feed Pump Station and DMPF. It is not envisaged that waste will be produced from the commissioning of the Screen and Feed. The commissioning of the DMPF will produce sludge, which will be stored onsite until classified for appropriate disposal.
- During the Pre-treatment Commissioning, the intake tunnel will be shock chlorinated (as required) with Sodium Hypochlorite to remove plant and animal growth.

Table 2 provides an overview of the key elements relating to the commissioning of the Pre-treatment System.

Table 2: Table 2: Key Elements - Pre-treatment Commissioning

Trigger for commencement of Management Strategy	Completion of the sea water lift pump commissioning and transfer of seawater into DMPF intake channel.
Key Commissioning Components	<ul style="list-style-type: none"> • Screen and Feed Pump Station • DMPF • Sludge Treatment
Trigger for completion of Management Strategy	Stream 1 – transfer of filtered water to RO building Stream 2 and Stream 3 – Completion of Overall Systems Commissioning (Attachment I.2.4)
Input	Seawater - 58,000 m ³ /h
Discharge	Filtered Seawater (including neutralised chemicals) - 58,000 m ³ /h
Solid Waste	Organic screen rejects; ferric sludge

The commissioning of the Pre-treatment System is summarised in Figure 2. The potential risks associated with the relevant activities in Figure 2 are set out in Table 3.

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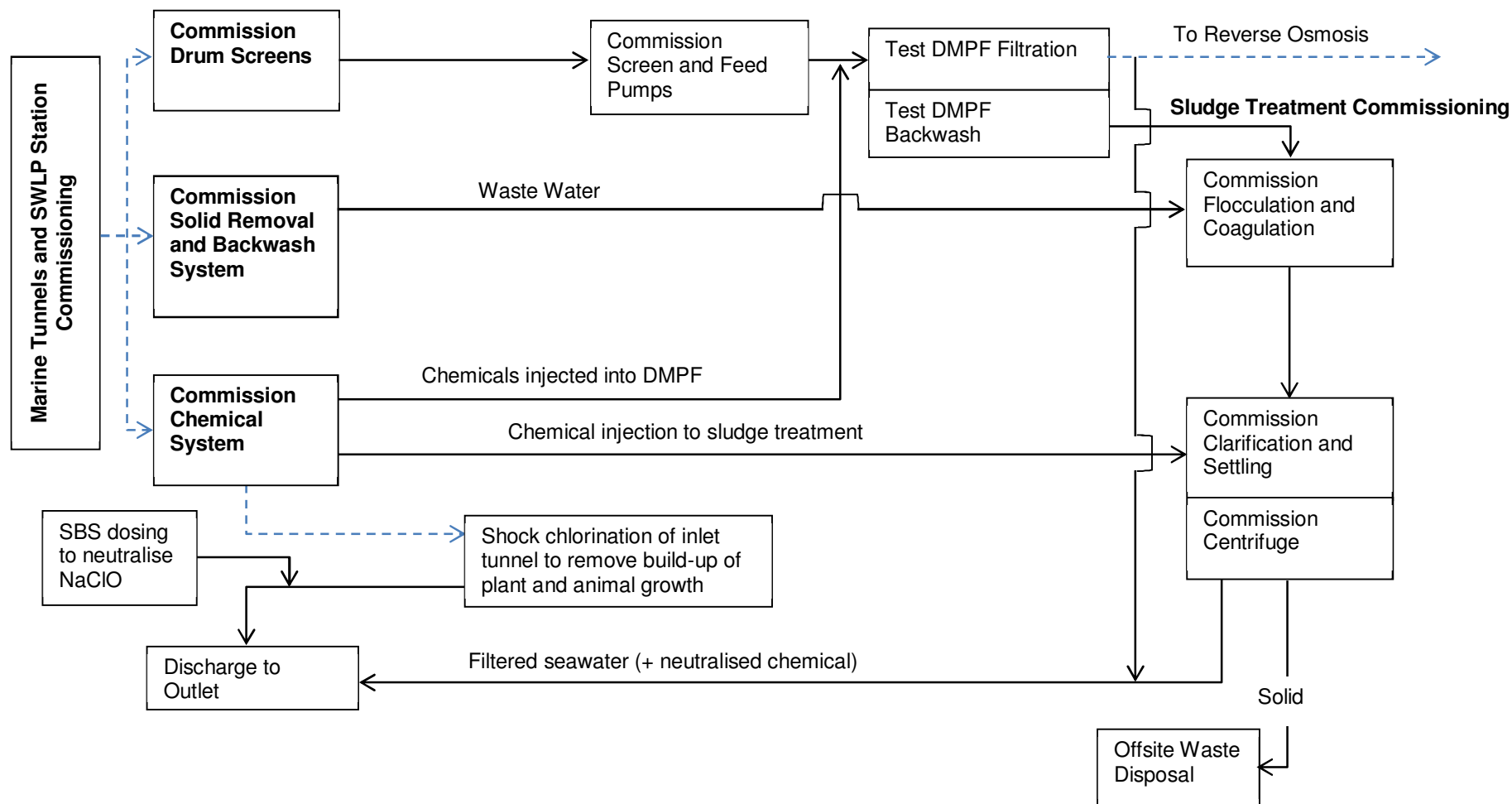


Figure 2: Pre-treatment Commissioning Procedure

6 Environmental Risk

An environmental risk assessment has been carried out for the commissioning works. This assessment is contained in the Environmental Risk Register, Attachment I.1 of the CESP. Table 3 summarises the potential hazards from commissioning activities illustrated in Figure 2, potential impacts of these hazards and the risk of occurrence as rated by the environmental risk assessment.

Table 3: Summary of Pre-treatment Commissioning risk assessment

Activity posing hazard	Potential Hazard	Potential Impact	Inherent Risk (before controls)	Residual Risk (after controls)	Control Measure Reference (Att I.2.5)
Commissioning of pre-treatment and sludge chemical systems, sodium hypochlorite, sodium bisulphite, Ferric Sulphate, Coagulant aid, sulphuric Acid.	Potential for unwanted chemical spills/leaks due to malfunction of components during commissioning leading to localised contamination of soil or groundwater/surface water.	Localised contamination of soils or groundwater/surface water systems affecting groundwater/surface water systems downstream of the plant site.	Moderate	Low	#9 and #10
Commissioning of pre-treatment and sludge chemical systems, sodium hypochlorite, sodium bisulphite, Ferric Sulphate, Coagulant aid, sulphuric Acid.	Potential for incorrect chemical dosage due to malfunction of equipment leading to discharge of out of specification water.	Adverse effects to marine flora and fauna.	Moderate	Low	#11
Transport & unloading of pre-treatment and sludge chemicals. (Ferric Sulphate, Sulphuric Acid, Coagulant Aid, Sodium Bisulphide, Sodium Hypochlorite).	Chemicals spills during truck unloading, leading to chemical spill.	Localised contamination of soils or groundwater/surface water systems affecting surface water and groundwater systems downstream of the plant site.	High	Low	#8, #9, #14, #26 and #28
Use of pre-treatment and sludge chemicals. (Ferric Sulphate, Sulphuric Acid,	Malfunction of equipment leading to over dosing of chemicals and potential for unwanted discharge	Potential to cause adverse effects on marine flora and fauna.	High	Low	#9, #10 and #11

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Activity posing hazard	Potential Hazard	Potential Impact	Inherent Risk (before controls)	Residual Risk (after controls)	Control Measure Reference (Att I.2.5)
Coagulant Aid, Sodium Bisulphide, Sodium Hypochlorite)	of process refuse with higher chemical content into the marine environment.				
Commissioning of Drum Screen and solid disposal via the dewatering screw and skips.	Leaks from the dewatering screw or skip.	Potential runoff of seawater onto the ground resulting in local contamination of soil and subsequent potential contamination of groundwater/surface water systems.	Moderate	Low	#14 and #29
Commissioning of Drum Screen and solid disposal via the dewatering screw and skips.	Organic solids decompose in the skips causing odour emission.	Odour at receptor.	Moderate	Low	#30
Commissioning of the Sludge System.	Clarified water / supernatant with higher concentration of chemical or turbid supernatant is discharged from Densadeg clarifiers into the outfall and marine environment.	Unwanted discharge into the marine environment causing adverse effects on marine flora and fauna.	Moderate	Low	#31
Commissioning of the Sludge System.	Improper or hazardous sludge produced during initial commissioning stage causing difficulty in management of solid waste (disposal from solid waste skips).	Disposal of waste to the incorrect offsite facility.	High	Low	#32
Commissioning of the Sludge System.	Emission of odour caused by composing organic materials in	Impact on neighbourhood amenity.	High	Low	#30

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Activity posing hazard	Potential Hazard	Potential Impact	Inherent Risk (before controls)	Residual Risk (after controls)	Control Measure Reference (Att I.2.5)
	sludge.				
Disposal of sludge waste.	Inappropriate offsite management of waste including: * Inappropriate handling, loading and transport of backwash sludge not in accordance with the EPA Waste Management Policies. * Unforeseen contamination due to inappropriate or illegal disposal of waste.	* Contamination of environment by waste. * Impact to land or water at location of disposal.	High	Low	#34
Commissioning of the DMPF system.	Discharge of filtered water from DMPF to Marine outlet and associated potential release of overdosed chemicals into the marine environment.	Toxic effect upon Marine Flora and Fauna causing death, injury or reduction in health.	High	Low	#35 and #36
Commissioning of the DMPF system	Failure of inline monitoring system resulting in potential discharge of off specification water to the marine environment.	Loss of individuals or biodiversity.	High	Low	#37
Commissioning of the DMPF system.	Leaks from piping and equipment during commissioning process.	Leakage of seawater or filtered seawater onto the surrounding ground on site contaminating surface water.	Moderate	Low	#40
Potential injection of dilute sodium hypochlorite for biofilm control of SWLP, DMPF, Cartridge filter	Discharge of off specification water to marine environment due to: - Overdosing of sodium	Impact on marine environment (beneficial uses) outside mixing zone resulting in loss of individuals or biodiversity.	High	Low	#41

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Activity posing hazard	Potential Hazard	Potential Impact	Inherent Risk (before controls)	Residual Risk (after controls)	Control Measure Reference (Att I.2.5)
systems prior to feed to RO.	hypochlorite at intake. - lack of neutralisation of sodium hypochlorite.				
Biofilm control of systems prior to feed to RO.	Discharge of off specification water to marine environment due to: - Overdosing of sodium hypochlorite at intake. - lack of neutralisation of sodium hypochlorite.	Impact on marine environment (beneficial uses) outside mixing zone resulting in loss of individuals or biodiversity.	High	Low	#42

Attachment I.1 and Attachment I.2.5 of the CESP should be consulted for a comprehensive assessment of these risks.

7 Control, Management and Mitigation Measures

Attachment I.2.5 describes the control, management and mitigation measures for addressing the potential impacts from the environmental commissioning risks outlined in Table 3. The measures in Attachment I.2.5 are designed to address potential impacts from the risks outlined in Table 3 as well as deliver on the objectives, targets and in particular the PRs listed in Table 1. Control, management and mitigation of commissioning environmental risks are underpinned by the design and construction that has been employed during the D&C phase of the VDP.

All design and construction activities have been undertaken in accordance to the “hierarchy of control” principals, which seek to:

1. eliminate the hazard,
2. substitute the hazard,
3. use engineering controls,
4. use administrative controls,
5. ensure use of protective equipment.

Utilisation of the hierarchy of control principles has ensured that potential environmental risks and hazards have been controlled to the extent possible prior to the commissioning process. This has been achieved by ensuring all design and construction activities have been implemented in accordance with the relevant Australian standards and guidelines, as set out in the D&C AEMPs.

Design-related control measures are set out in the Design Packages (DPs) referenced in the Sub Plans (Attachment I) to the D&C Plant and General Area EMP. PRs that relate to design are addressed in accordance with the Design Management Plan (PL-TDV-PM-0-X-000-0011-0-00).

To ensure controls are further implemented during the commissioning process, all work involving the use of chemical substances shall be subject to the JSEA process. The JSEA process will address the hazardous qualities of the material to be used. No work shall be undertaken during the commissioning process without known risk to both environment and human health being understood and adequate control measures in place. Work shall only be conducted with a copy of MSDS attached to the JSEA. Control measures implemented on site in response to potential and actual hazardous material impacts during commissioning will be recorded in the Weekly Environmental Inspection Checklist and records retained on site.

8 Site Environmental Plans

A single Site Environmental Plan (SEP) was developed for the whole plant site as part of the D&C PGA EMP. The SEP will continue to be operational during the CESP. The SEP details environmental management measures such as permanent controls, No Go zones, property boundaries and significant flora and fauna species. These measures are implemented to minimise potential impacts on the environment and community.



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The information contained in the SEP is presented in pictorial and tabular drawing format. This is to make them easy to use by all site personnel, consultants and subcontractors. SEPs are updated to reflect operating practices on a regular basis.

9 Potential Emergencies and Abnormal Events

The hazards and impacts associated with potential emergencies and events outside normal commissioning activities are considered within CESP Attachment I.1. A summary of the potential hazards and impacts is shown in Table 4. CESP Attachment I.2.5 provides more information on the measures for responding to these events as referenced below.

Table 4: Potential Emergencies and Abnormal Events

Potential Hazard	Potential Impact	Inherent risk (before controls)	Residual risk (after controls)	Control Measure Reference (Att I.2.5)
Air Quality				
Extreme hot dry conditions during a weekend or overnight break in commissioning causing excessive dust emanating from the site.	Potential for Dust disturbance and impacts on sensitive receptors including loss of amenity.	High	Moderate	#61
Fire event resulting from commissioning activities or natural events.	Potential for air quality impacts on sensitive receptors.	Low	Low	#62
Flora and Fauna				
Movement of machinery and site vehicles.	Fauna mortality resulting from collision with vehicles and machinery.	High	Moderate	#63
Disease spread of known pathogen of flora and fauna.	Infection of fauna and flora resulting from transmission of the disease by vehicle, person, disposal of contaminated material etc.	Extreme	Moderate	#64
Hazardous Materials and dangerous goods				
Hazardous substance spill resulting from equipment or plant failure (i.e. accidental rupture of tank etc).	Pollution of soils, receiving waters and potential harm/injury to personnel, flora and/or fauna.	High	Low	#71
Careless/negligent act leading to a spill/discharge of a hazardous substance.	Pollution of soils, receiving waters or potential harm/injury to personnel, flora and/or fauna.	High	Moderate	#72
Unexpected ignition of flammable and combustible liquids during normal commissioning operations.	Pollution of soils, receiving waters or potential harm/injury to personnel, flora and/or fauna.	High	Moderate	#73

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Potential Hazard	Potential Impact	Inherent risk (before controls)	Residual risk (after controls)	Control Measure Reference (Att I.2.5)
Contamination of air, land and water, and human and ecological health, due to the incorrect separation and segregation of hazardous and dangerous substances.	Pollution of soils, receiving waters or potential harm / injury to personnel, flora and fauna via discharge of hazardous substance.	High	Low	#74
Traffic incident involving the transportation of bulk hazardous materials and dangerous substances.	Pollution of soils, receiving waters or potential harm/injury to personnel, flora and/or fauna.	Extreme	Moderate	#75
Waste				
Unforeseen contamination due to inappropriate or illegal disposal of waste.	Environmental contamination.	Extreme	Moderate	#65
Waterways and Wetlands				
Extreme storm event leading to local flash flooding.	Immediate danger to people's safety, environment and damage to equipment.	High	Low	#66
Contamination of existing waterways resulting from a storm event greater than the one in two year storm event.	Localized harm to soil and local water quality.	Extreme	Moderate	#67
Design of temporary sediment controls is insufficient for the maximum exposed area.	Localized harm to soil and local water quality.	High	Moderate	#76
Unforeseen water and soil contamination due to fuel or oil spill.	Localized harm to soil and local water quality.	High	Moderate	#68
Surface water exposed to sediment flow.	Localized harm to soil and local water quality.	Extreme	Moderate	#69
Marine Flora and Fauna				
Discharge of off specification water to marine environment or other uncontrolled discharge.	Localised impact to water quality and/or impact to marine flora and fauna.	High	Low	#70



Attachment I.2.2 – Pre-Treatment Management Strategy

The control measures table (CESP Attachment I.2.5) focuses on preventative measures to manage risks associated with events outside the normal commissioning activities of the VDP. In addition to the preventative and reactive measures outlined in CESP Attachment I.1 and CESP Attachment I.2.5, all environmental incidents will be responded to in accordance with the D&C PGA Environmental Incident Response Plan (EIRP) or D&C Utilities EIRP, depending on whether the incident occurred on the Plant site or along the utilities corridor respectively. The EIRPs provide project specific details for the identification of and response to potential environmental related incidents during the commissioning of the VDP. It provides guidance on strategies to manage potential and actual incidents, as well as follow-up and reporting requirements.