

Victorian Desalination Project



Commissioning Environmental Sub-Plan
 Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

DOCUMENT NUMBER					
TDV	0	EV	SH	0021.I3	03



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Table of Contents

Attachment I.3 –Monitoring, inspection, Reporting and Audit Schedule..... 4

Table 1 - MONITORING 4

Table 2 - MONITORING STANDARDS & GUIDELINES..... 13

Table 3 - INSPECTION..... 15

Table 4 - REVIEW, REPORTING & AUDIT 17



Attachment I.3 –Monitoring, inspection, Reporting and Audit Schedule

Table 1 - MONITORING

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Monitoring					
Hazardous Materials					
Ongoing	Visual observations of hazardous material use, storage	Daily / Weekly	Foreman or Supervisors	Site Diary / Weekly Environmental Inspection Checklist	EP checklists as per HSE Activity Scheduler. NCRs via HSE
Air Quality					
Dust	Visual monitoring for raised dust or commissioning activities that may have the potential to cause visible dust. One portable aerosol dust monitor (Dust Trak) is available and utilised to conduct spot checks or continuous monitoring as required. This may be in response to a dust event or complaints.	Daily	Supervisors, HSE Manager and team	Site Diary / Weekly Environmental Inspection Checklist	Monthly Environmental Report



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Monitoring					
Dust Deposition	In accordance with Dust Monitoring Protocol (D&C PGA EMP Sub-Plan I4.2). Two dust deposition gauges on the northern and eastern boundaries of the site collected and analysed on a monthly basis.	Monthly	Environmental Officer	Monthly Air Monitoring Report (Consultant / lab)	Monthly Environmental Report
Real time aerosol dust monitoring station	In accordance with Dust Monitoring Protocol (D&C PGA EMP Sub-Plan I4.2) - one real time aerosol dust monitor with PM10 size selective inlet to assess the potential dust impacts at the nearest potentially affected receptor.	Real Time (10 minute averages) / Audible Alerts	Environmental Officer	Monthly Air Monitoring Report	Monthly Environmental Report



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Monitoring					
Weather Conditions	An on site weather station is installed and utilised on site to record weather conditions such as wind speed and direction. It is used to provide a real-time indication to the site office on the mean and the gust wind speed and direction in order to assist in works planning.	Real Time (10 minute averages)	Environmental Officer	Monthly Air Monitoring Report / Weekly Environmental Inspection Checklist	Monthly Environmental Report
Odour Assessment	Validation of odour modelling undertaken for Works Approval Condition 2.1. Includes air sampling from waste handling, ambient air sampling at project boundary, confirmation of odour units and comparison with model.	Once during 7 day trial for PCA	Commissioning Completions Manager / Odour Consultant	Lab / consultant form	Consultant Report
Resource Efficiency					
Energy usage monitoring	Monitor compliance, energy consumption and type used against resource efficiency indicators as required	Monthly	Environmental Officer	Weekly Environmental Inspection Checklist	Monthly report (AquaSure Commissioning internal reporting). Additional reporting as required.



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Monitoring					
Waste management and recycling practices	Monitor compliance, waste generation and resource consumption of waste handling/recycling facilities against resource efficiency indicators as required	Monthly	Commissioning Environmental Representative, Environmental Officer	Weekly Environmental Inspection Checklist	Monthly report (AquaSure Commissioning internal reporting). Additional reporting as required.
Prescribed Waste	Generated sludge from the commissioning process is not expected to be classified as Prescribed Waste. Monitor generated sludge and transfer to EPA-licenced off-site location if required as per the Sludge Sampling and Classification Procedure (PR-TDV-EN-2-N-000-0001).	Following the generation of ferric sludge (after pre-treatment commissioning); during the 7 day Reliability Test of Stream 1. Additional tests may be undertaken during the 30 day Reliability Test of 3 Streams to reclassify sludge generated during this period if required.	Commissioning Environmental Representative and Commissioning and Completions Manager	Monitoring Report Form	Waste Classification Reports
Noise and Vibration					



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Monitoring					
Noise & Vibration Monitoring	Monitoring will be conducted in accordance with D&C PGA EMP Noise & Vibration Sub-Plan Att I8. In response to complaints, where the complaint may have some basis, and when there a substantial changes in the level of noise or vibration generating activity. Additional monitoring is to be recorded using the Plant Noise Monitoring Record Sheet	As required.	Environmental Officer	Consultant Noise Monitoring Report / Plant Noise Monitoring Record Sheet / Weekly Environmental Inspection Checklist	Monthly Environmental Report
Noise monitoring for validation of model	Conduct noise monitoring for the validation of modelling as described in the Airborne Environmental Noise Assessment (COMM 51).	Once off validation exercise	Commissioning Environmental Representative, Environmental Manager	Consultant Form	Consultant Report
Water Quality And Erosion Management					



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Monitoring					
Ongoing monitoring (flooding controls)	Weather forecasts checked and disseminated to Site Manager daily, levies reinstalled, bunds maintained	Daily	Plant AEM	Site Diary / Weekly Environmental Inspection Checklist	Report on request
Waterways and Wetlands					
Water Quality	Before discharging/disposing of water from pipeline hydrostatic testing, in accordance with Transfer Pipeline Hydrostatic Test and Commissioning Phase Environmental Discharge Procedure (PLV-3-EN-PR-0003).	Prior to commencement of discharge of water from pipeline	Environmental Manager	Water quality monitoring permit for controlled discharge / dewatering	Permit issued to Construction superintendant supervisor or foreman
Baseline Marine Monitoring Program					
Coastal Processes Baseline Monitoring - Mapping of Geomorphology	Coastal features are mapped using 4-band satellite imagery	During Design phase and up to RTF	Commissioning Team / Environmental Manager	Monitoring Report Form	BMMP Quarterly Report



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Monitoring					
Coastal Processes Baseline Monitoring - Coastal Integrity	Field observations, with observers examining the beach, dune and hind-dune habitats from the Powlett River to east of the project lease area	Quarterly, up to RTF	Commissioning Team / Environmental Manager	Monitoring Report Form	BMMP Quarterly Report
Marine Ecosystem Baseline Monitoring	Review of the marine environment for ecological impacts before operation of the intake and outlet.	Quarterly, commencing in September 2010 up to RTF	Commissioning Team / Environmental Manager	Monitoring Report Form	BMMP Quarterly Report
Section 30A Commissioning Approval					
Tracer Test (Diffuser Validation)	Validates all modelling and investigations related to the diffusers and confirms that expected dilutions predicted in design are met	During the 7 day Reliability Test of Stream 1	Environmental Manager, Commissioning and Completions Manager, Commissioning Environmental Representative	Monitoring Report Form	Diffuser Validation Report BMMP Quarterly Report
In-Plant Water Quality Monitoring	Monitoring of plant operations to include total volume and flow rate of discharge and salinity of the intake compared to outlet.	Continuous throughout commissioning	Commissioning and Completions Manager, Commissioning Environmental Representative	Monitoring Report Form	BMMP Quarterly Report
Diffuser Performance Monitoring	Monitoring of salinity at the boundary of the mixing zone	Data recorded continuously, collected monthly.	Commissioning and Completions Manager, Commissioning	Monitoring Report Form	BMMP Quarterly Report



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Monitoring					
			Environmental Representative		
Direct Toxicity Assessment	Ecotoxicology testing of the brine using a series of direct toxicity bioassays	Immediately following discharge of brine (i.e., during the 7 day Reliability Test of Stream 1).	Commissioning and Completions Manager, Commissioning Environmental Representative	Monitoring Report Form	Consultant Report
Waste Characterisation	Characterise solid waste for disposal	Following generation of ferric sludge (after pre-treatment commissioning); during the 7 day Reliability Test of Stream 1. Additional tests may be undertaken during the 30 day Reliability Test of 3 Streams if required.	Commissioning and Completions Manager, Commissioning Environmental Representative	Monitoring Report Form	Waste Classification Reports
Site Wide Noise Assessment	Confirm noise performance and ensure consistency with design	During the 30 day Reliability Test of 3 Streams	Commissioning and Completions Manager, Commissioning Environmental Representative	Monitoring Report Form	Consultant Report



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Monitoring					
Odour Assessment	Confirm odour generation and ensure consistency with design	During the Performance Test of 3 Streams.	Commissioning and Completions Manager, Commissioning Environmental Representative	Monitoring Report Form	Consultant Report



Table 2 - MONITORING STANDARDS & GUIDELINES

Monitoring Program	Applicable Monitoring Standards and Guidelines
Hazardous Materials	<p>Approved Criteria for Classifying Hazardous Substances, 2004, NOHSC:1008(2004), 3rd Edition Code of Practice for the Storage and Handling of Dangerous Good, No. 27, 2000 Australian Dangerous Goods (ADG) Code, 7th edition National Code of Practice for Labelling of Workplace Hazardous Substances, 1994, NOHSC: 2012 AS 1940 – 1993 The Storage and Handling of Combustible and Flammable Liquids</p>
Air Quality	<p>See D&C PGA Air Quality Sub Plan Attachment I4.2 Dust Monitoring Protocol AS 2922-1987 Guide for the Siting of Sampling Units AS 3580.10.1 1991 Particulates – Deposited Matter – Gravimetric Method AS 3580.9.6-1990 Particulate Matter – PM10 – High-volume Sampler with Size-selective Inlet General guidance: A Guide To The Sampling And Analysis Of Air Emissions And Air Quality, Publication 440.1 EPA Victoria (2002) EPA Best Practice Environmental Management – Environmental Guidelines for Major Construction Sites (1996) EPA Vic 2007 Protocol for Environmental Management – Mining and Extractive Industries Pubn 1191, December 2007.</p>
Resource Efficiency	<p>Industrial Waste Management Policy (Prescribed Industrial Waste) EPA Publication 448.3 – Classification of Wastes and the Guidelines Australian Code for the Transport of Dangerous Goods</p>
Noise and Vibration	<p><i>Noise:</i> EPA Technical Guideline 1254 Noise Control Guideline (EPA 1254) EPA Victoria – A guide to the measurement and analysis of noise (EPA Publication 280, 1991) Australian Standard AS 1055.1 – 1997 Acoustics – Description and Measurement of Environmental Noise AS2012.1-1990 Acoustics – Measurement of airborne noise emitted by earth moving machinery and agricultural tractors – Determination of compliance with limit for exterior noise</p> <p><i>Vibration:</i> NSW Department of Environment and Climate Change (DECC) Assessing Vibration: A Technical Guideline (2006) AS2670.2</p>



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Monitoring Program	Applicable Monitoring Standards and Guidelines
	<p>Evaluation of human exposure to vibration. Part 2 – Vibration in buildings (1-80Hz) British Standard BS7385-2:1993 Evaluation and Measurement for Vibration in Buildings, Part 2 – Guide to damage levels from ground-borne vibration German Standard DIN 4150-3:1999 Structural Vibration – Part 3: Effects of vibration on structures</p>
Water Quality and Erosion Management	<p>Urban Stormwater Best Practice Environmental Guidelines (1999), CSIRO Publishing, Stormwater Pollution Prevention Code of Practice (1998), SA EPA.</p>
Waterways and Wetlands	<p>ANZECC and ARMCANZ (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality. EPA (1996). Environmental Guidelines for Major Construction Sites. Publication 480, Environment Protection Authority Victoria, Melbourne.</p>
Baseline Marine Monitoring Program	<p>Various scientific standards and methods depending on component being monitored. Refer to Marine Flora and Fauna sub plan Attachment I4 for additional details. AQIS Inspection Standards Various scientific standards and methods. Refer to Marine Pest and Pathogen Sub Plan Attachment I6.5 EPBC Act Policy Statement 2.1</p>
Discharge Marine Monitoring Program	<p>Various scientific standards and methods depending on component being monitored. Refer to Marine Flora and Fauna sub plan Attachment I4 for additional details. AQIS Inspection Standards Various scientific standards and methods. Refer to Marine Pest and Pathogen Sub Plan Attachment I6.5 EPBC Act Policy Statement 2.1</p>



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Table 3 - INSPECTION

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Daily inspections of commissioning activities	General activities and services, including: <ul style="list-style-type: none"> hazardous material use, storage commissioning activities and progress energy and water using recycling facilities, waste handling practices noise generating activities visual inspections of water turbidity, exclusion zones, chemical discharges 	Daily	Environmental Officer or representative	Diary – Notes	NCRs via HSE Action database. Observations and areas for improvement tracked in actions register.
Site environmental inspections	All activities, services and facilities	Weekly	Site Environment Officer and/or 3rd party	Environmental Inspection Checklists (Area and Activity specific)	Environmental Programs as per HSE Activity Scheduler. NCRs unresolved within 5 days: HSE Action database. Observations and areas for improvement tracked in actions register. Monthly Project Report.
Environmental Program (EP) compliance checklists	All activities, services and facilities	Monthly	Area Environment Manager	CESP Attach I.6 – Environmental Inspection Checklist	Environmental Programs as per HSE Activity Scheduler. Monthly Project Report



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Subcontractor inspections	Inspections of sub contractors and compliance with CESP (including monitoring methods)	Frequency will vary based on the specific works being undertaken. Subcontractor activities will be accounted for through the weekly site inspection checklist where possible.	Site Environmental Officer	Sub contractor inspection checklist	Inspection report



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Table 4 - REVIEW, REPORTING & AUDIT

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
Reviews					
Compliance Tracker	Review of relevant environmental obligations under PS&PR	Monthly	Area Environment Manager, Commissioning Environmental Representative	Compliance Tracker	The D&C EMP tab of the <i>Environmental Compliance Tracker</i> (TDV-0-EV-RP-0001-01) is provided in the <i>VDP D&C Contractor Monthly Report</i> . The most current version can be found in INCITE.
Reporting					
Complaints from landowners and community	Reporting of landowner and community complaints	Monthly	Community and Land Liaison Manager	Consultation Manager Database	Input into Monthly Project Report
EMS Checklist/ Project report	Project performance against EMS	Monthly (for end of month)	Area Environment Manager, Commissioning Environmental Representative	Relevant AEMP Attachment L	HSE Performance Report in HSE Reporting System.
Environmental Performance Report	Workplace environmental performance reporting and compliance status of licences	Monthly (for end of month)	Area Environmental Manager Project Manager Commissioning Environmental Representative	Online HSE Reporting System	TAU-H&S-PR-016 Measuring and Reporting HSE Performance
Incident reporting	Reporting of environmental and cultural heritage	As required	Cultural Heritage Manager	HSE Reporting Tool	All environmental and cultural heritage incidents Incidents to be recorded under the



Attachment I.3 –Monitoring, Inspection, Reporting and Audit Schedule

Type	Scope	Frequency	Responsibility	Form used	Reporting procedure
	incidents				environmental incidents or near hits sections of the HSE Reporting Tool for the project and reviewed monthly. Class 1 and 2 incidents reported to AquaSure, DSE and relevant regulatory authority as soon as practical.
Audits					
TDJV D&C EMP and Area EMPs Audits	D&C EMP(includes EMP implementation, impacts, interviews)	Quarterly	TDJV Stakeholder and Completions Director	Thiess Env Audit tool v2007	TAU-SYS-PR-001 Audits. Schedule included in HSE Activity Scheduler.
AquaSure	Project performance against AquaSure EMS	As determined by AquaSure EMR	Facilitated by Stakeholder and Completions Director, Area Environmental Managers and Commissioning Environmental Representative	As determined by AquaSure EMR	Reports to be uploaded to Thiess Env Audit Database on HSE Reporting System. Monthly Project Report.
Third party certifiers and other audits (e.g. EPA)	Workplace EMS (includes EMP implementation, impacts, interviews) plus all construction activities, facilities	Monthly	IR&EA,	As provided by third party	Reports to be uploaded to Thiess Env Audit Database on HSE Reporting System. Monthly Project Report.