



INFRASTRUCTURE OPERATING PLAN

Document history and status

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Signed for and on behalf of Sydney Desalination Plant Pty Limited:



 Chief Executive Officer

Date: 24 APRIL 2015

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Commercial-in-Confidence Appendices

Appendix 1: Summary table of IPART Audit Guidelines & Integrated management systems (WTOC0003.01)

1 Executive summary

1.1 Meeting regulatory requirements

The *Water Industry Competition Act 2006* licences require a water infrastructure operating plan(s) to be developed. A number of plans and documents are in place, which meet the requirements of the infrastructure operating plan(s).

This Infrastructure Operating Plan has been developed as the over-arching plan describing infrastructure management with references to a supporting body of technical documents.

Appendix 1 of this plan provides a detailed analysis of Sydney Desalination Plant Pty Limited's (SDP) compliance with *Water Industry Competition Act 2006* licence requirements. The table at Appendix 1 provides an in-depth summary of SDP's strategies and documentation in relation to the audit guidelines for water infrastructure operating plan(s) as published by the NSW Independent Pricing and Regulatory Tribunal. (Audit Guideline for Greenfield Schemes, *Water Industry Competition Act 2006*, July 2013)

2 Background

2.1 Metropolitan Water Plan

The NSW Government's Metropolitan Water Plan (the Plan) outlines the measures that ensure Sydney, the Illawarra and the Blue Mountains have enough water now and in the future.

In the 2010 Plan there are four main parts that make up the NSW Government's 'Water 4 Life' plan: dams, recycling, desalination and water efficiency.

The desalination plant is the main initiative in the Plan to provide a non-rainfall dependent source of water to secure Sydney's water supply against the effects of climate change, population growth and drought.

The plant can supply up to 250 million litres of water a day, which is up to 15% of Sydney's water needs. The plant's capacity can be doubled to produce up to 30% of Sydney's water supply, in the future. The Plan prescribes the operating rules for the plant which are also then included in SDP's Network Operator's Licence.

2.2 Operating environment

2.2.1 Sydney Desalination Plant Pty Ltd (SDP)

Sydney Desalination Plant Pty Ltd (SDP), which holds the long term lease of Sydney Desalination Plant, the Drinking Water Pump Station and the Kurnell to Erskineville pipeline is jointly owned by the Ontario Teachers' Pension Plan Board (50%) and two funds managed by Hastings Funds Management Limited: Utilities Trust of Australia and The Infrastructure Fund (together 50%).

Drinking Water from SDP is added into Sydney Water's distribution system at Erskineville via the 18 kilometre long pipeline.

SDP has been granted two licences under the *Water Industry Competition Act 2006*:

1. Retail Supplier's licence No. 10_011R, to supply water by means of the water industry infrastructure under the Network Operator Licence no 10_010.
2. Network Operator's Licence No. 10_010 to construct, operate and maintain water industry infrastructure.

The Retail Supplier's Licence permits SDP to sell drinking water from the plant. Currently, its only customer is Sydney Water (see Figure 1). Drinking water from the plant mixes with drinking water that originates in Sydney Water's other sources such as dams, in the distribution system. Sydney Water sells drinking water to homes and businesses in Sydney, the Illawarra and the Blue Mountains (consumers – see Figure 1).

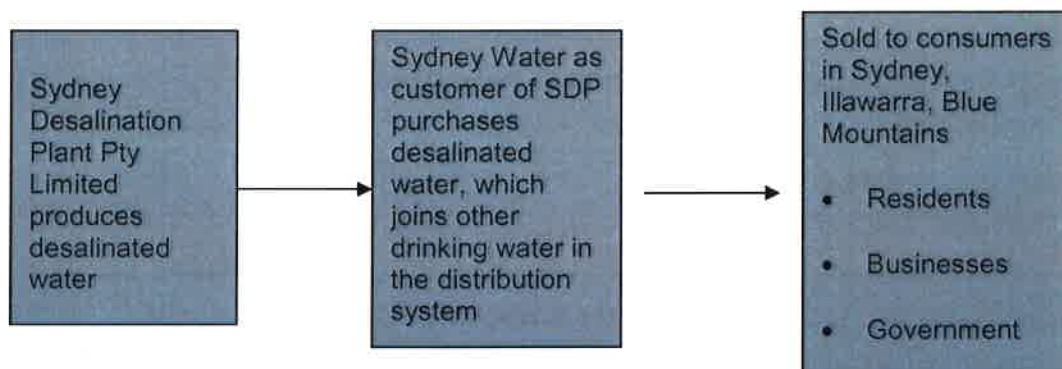


Figure 1: Current structure of retail arrangements

SDP and Sydney Water have entered into a Water Supply Agreement for Sydney Water to purchase drinking water from SDP.

2.2.2 Veolia Water Australia (VWA)

SDP has entered into three long-term contracts with Veolia Water Australia (VWA) for the operation and maintenance of the desalination plant, drinking water pumping station as well as the Kurnell to Erskineville pipeline.

VWA is a world leader in managing, operating and providing water and wastewater infrastructure services. It operates treatment plants and networks to provide drinking water, treat wastewater and produce recycled water for reuse.

2.2.3 Institutional arrangements

Institutional arrangements for the desalination plant are shown in Figure 2.

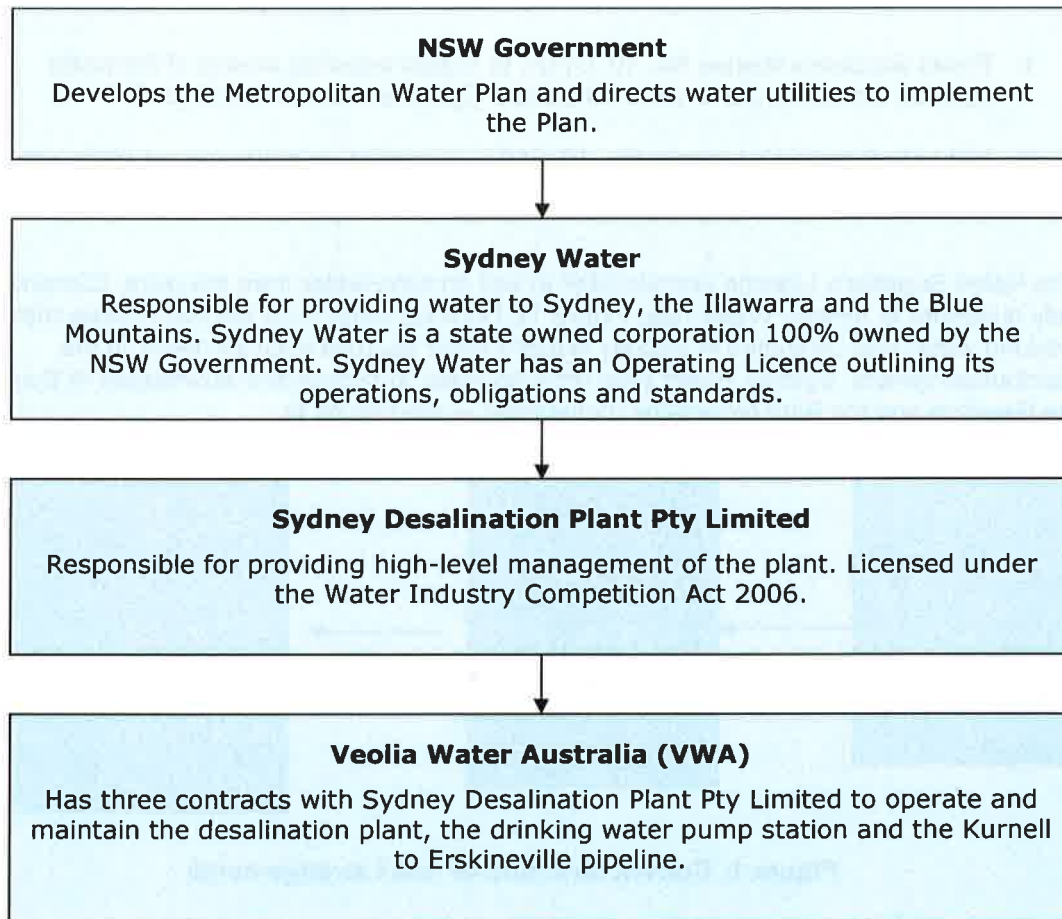


Figure 2 : Institutional arrangements for the Sydney Desalination Plant

2.2.4 Operational Arrangements

Figure 3 shows the process and business structure map for the desalination plant operational arrangements. It indicates the company boundaries, physical responsibilities, drivers, management systems and interfaces.

The operational boundary between SDP and the customer (Sydney Water Corporation) is at the last valve before shaft 11 where the pipeline enters the city tunnel (asset # SNSV1/VLV01).

This *Infrastructure Operating Plan* sets out SDP's strategies to ensure that WIC Act and regulation requirements are met, including:

- The operation and maintenance of the infrastructure, including particulars as to the life span of the infrastructure and the arrangements for the renewal of the infrastructure, and
- The continued safe and reliable performance of the infrastructure, and
- The continuity of water supply, and
- The maintenance, monitoring and reporting of standards of service under the three contracts with VWA for the plant, the pipeline and the drinking water pumping station.

This plan shall be reviewed on a regular basis according to the requirements of the Water Industry Competition Licence No. 10_010.

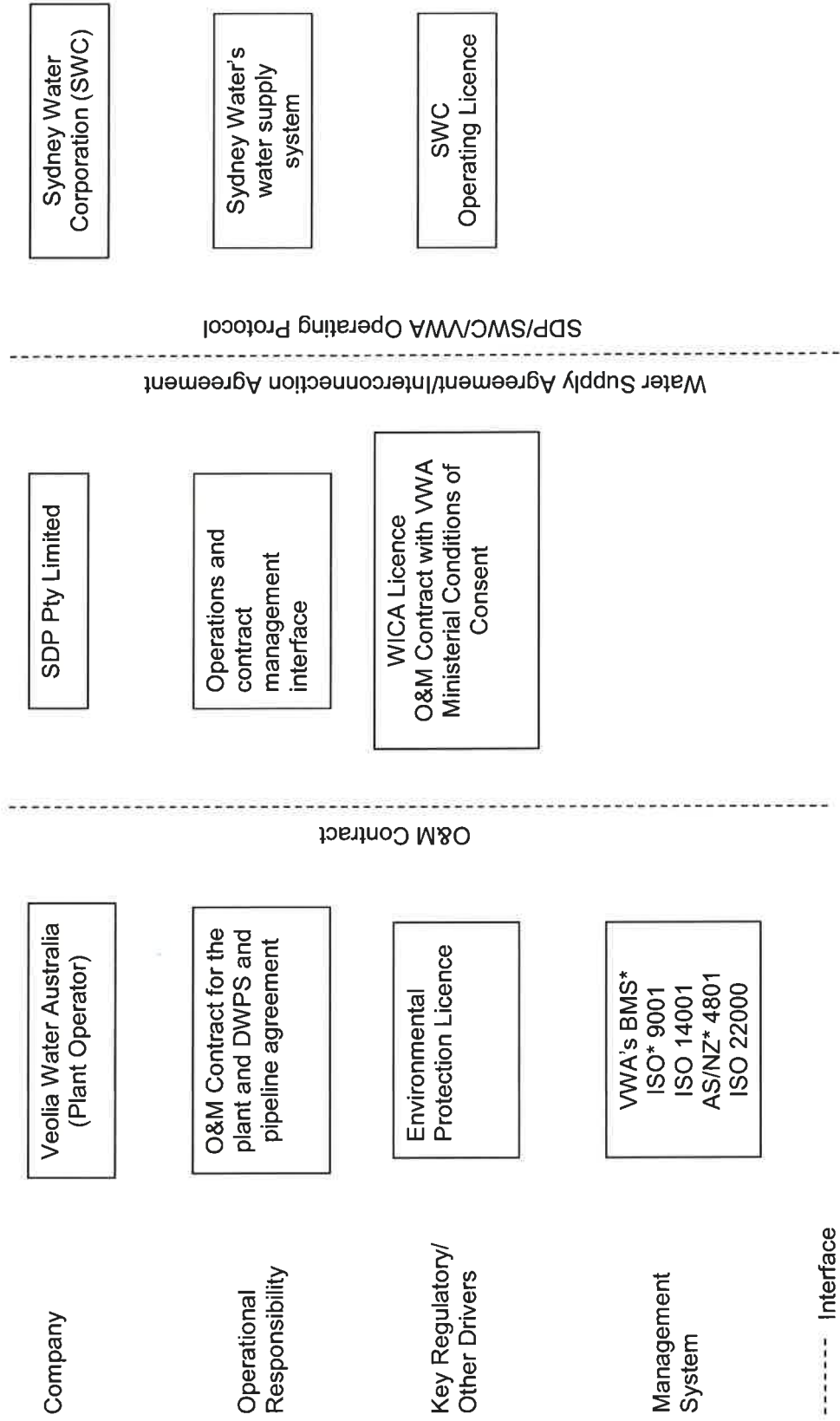


Figure 3: Desalination processes and business structure

3 Overview of the Desalination plant and scheme

3.1 Scheme description

SDP is responsible for the production of drinking water from the desalination plant, and pumping of this water into Sydney Water's distribution system via the pipeline.

Figure 4 below shows the location of the desalination plant and pipeline. There are no off takes from the pipeline until its connection to the City Tunnel at Erskineville for distribution into the Potts Hill system.

The desalination plant will supply an average of 250 million litres per day of drinking water, which represents about 15% of the total supply for Sydney.

The plant commenced operation in 2010 and is powered by 100% renewable energy. Water is delivered from the plant into Sydney Water's system in compliance with the guideline values in the Australian Drinking Water Guidelines.

The plant was shut down on 1 July 2012 to accord with SDP's regulatory and licensing regime. The plant will not be restarted as long as available water storage:

- is equal to or greater than 70%, and has not been less than 70% since it was last equal to or greater than 80%; or
- is equal to or greater than 80%.



Figure 4: Schematic of desalination plant delivery pipeline to Erskineville

3.2 Energy use

The plant's energy use is 100% offset by renewable energy, through the use of energy and LGCs supplied under long term contracts with Infigen Pty Ltd and one of their subsidiaries, Renewable Power Ventures.

3.3 Operations & Maintenance Contract

SDP has entered into three contracts with VWA for the operation and maintenance of the desalination plant, drinking water pump station (DWPS) and the delivery pipeline. The O&M Contract provides for various operating and shutdown modes as a consequence of the Operating Rules in SDP's Network Operator's Licence.

Under the contracts the plant, pipeline and DWPS will be operated and maintained:

- In accordance with best industry practice and the requirements of the contract;
- So as to remain at all times fit for purpose;
- So as to provide drinking water at the delivery point in such quantities as SDP directs;
- To have an operating life consistent with contract requirements;
- To be capable of continuous and reliable operation throughout the term.

Regular contract and operational interface meetings (Operations Review Group) are held between SDP and VWA to:

- review site safety performance and initiatives;
- review the performance of the Operations and Maintenance services and the performance of the Operator's other obligations, including pursuant to SDP's requirements, the approvals, and Schedule 5 of the O&M Contract, both prior to the commencement date and during the term;
- review the quality of the Operations and Maintenance services and any remedial measures required;
- review the adequacy of the Integrated Business Management System (IBMS) and subsidiary documents; and
- provide a forum for discussion and co-ordination of the Operations and Maintenance services in the various operating modes for the plant;
- review customer and community complaints and action taken to address complaints;
- discuss the implementation of shutdown and restart directions;
- assist in the resolution of any special matters or disputes referred to the Operations Review Group by a party; and
- review any other matters required by ORG representatives.

SDP utilises external consultants as technical experts in the management of the contract from time to time, to provide technical input and advice.

3.4 Operating Protocol

SDP, Sydney Water and VWA have developed an operating protocol attached to the Water Supply Agreement. The operating protocol describes the operational interface arrangement and key procedures, including:

- Water supply system
- Storage and distribution
- Water quality
- Operational responsibility
- Management of emergency situations
- Communication including primary point of contact and communication contact levels
- Planned maintenance / shutdown protocols
- Operational change request

The protocol clearly defines the roles and responsibilities that each party and staff member undertakes regarding the operation of the Sydney desalination plant.

In addition to the Operating Protocol, VWA has incident and emergency management plans in place and these are incorporated into VWA's IBMS. These documents form part of the VWA quality management system and are regularly reviewed and updated.

4 Business Management Systems

The Operations and Maintenance contractor, VWA has developed and maintains integrated business management system (IBMS) which is certified to ISO9001 (Quality), ISO 14001 (Environment), ISO22000 (Food Safety), OHSAS18001(OHS) and AS/NZ 4801 (OHS).

The IBMS is a combination of business processes, objectives, culture, products and services / outputs, documents, actions, requirements / inputs, risk and controls, knowledge and responsibilities.

By following these systems and processes, both companies can facilitate:

- proper accountability, probity and transparency
- compliance with contractual and other performance requirements
- compliance with relevant legislation and regulations
- identification, assessment and management of risks
- employee understanding of expectations and standards as relevant to their role, site or contract
- identification and implementation of best practice in key aspects of its business
- planning, documentation and monitoring of business performance
- setting of goals, objectives and targets to continually improve business performance
- capturing, recording and communicating business knowledge.

Key elements such as management review, document control, training and auditing are also combined into a holistic approach to business management.

VWA's management systems adhere to the principles of ISO 9001 which include the requirements of:

- Management Support – through management commitment to the quality systems; authorisation of the quality policies; business planning commitment; responsibility, authority and communication; and management review
- Document Control – including requirements of registering documents; documentation protocols; regular document review and use of document templates; and records management.
- Resource Management – including provision of resources; appropriate management of human resources (including training and assessment); provision of appropriate infrastructure and work environment.
- Product Realisation – management of customers and customer enquiries; purchasing processes; control of monitoring and measurement devices.
- Measurement, Analysis and Improvement – through management of non-conforming products; analysis of data, management review and improvement processes.

VWA's IBMS, and associated documents, incorporate the business management of the plant from the ocean intake, through production and delivery to the operational boundary.

The IBMS is regularly reviewed and audited. Internal, collaborative and external audits are carried out on the plant. The results and findings from these audits are reported by VWA to SDP.

5 Stakeholder Engagement

The key stakeholders for the desalination plant include:

- SDP
- VWA
- NSW Health
- Office of Environment and Heritage (OEH)
- IPART
- The NSW Department of Planning and Environment
- Sydney Water
- Consumers
- Local Community

SDP liaises regularly with IPART, Sydney Water and VWA on a range of operational and regulatory matters. SDP liaises with NSW Health as required, in relation to the quality of water supplied from the desalination plant.

SDP and VWA liaise with the Department of Planning and Environment in regard to any remaining requirements of the Planning Minister's Conditions of Approval as required.

When the plant is not operational, liaison with customers and the local community is limited.

The plant operator, VWA, liaises with the OEH regarding compliance with the Environment Protection Licence.

6 Continuous improvement and review

Continuous improvement and review of overall processes and this document is currently facilitated through:

- Regular meetings between SDP management and relevant regulatory agencies
- Regular operational and contractual meetings between SDP and VWA
- Management review of the IBMS
- Quality system, O&M Contract and regulatory audits
- Incident and issue management systems

This Infrastructure Operating Plan will be reviewed regularly.

7 Public reporting

SDP provides operational details about the plant including information on operating hours, volume of desalinated water produced and equivalent emissions of carbon dioxide associated with the operation on its website <http://sydneydesal.com.au>.

8 Definitions

Term	Definition
AS/NZ	Australian and New Zealand Standard.
Consumer	Defined as the public receiving the water at the 'tap' from Sydney Water, (consistent with the SWC Operating Licence).
Customer	Defined as 'Sydney Water' – being SDPs only current 'customer'
DWPS	Drinking Water Pumping Station.
EPL	Environment Protection Licence at the Plant.
IBMS	Veolia Water's Integrated Business Management System.
ISO	International Standards Organisation.
Operational Monitoring	Sampling and analysis that occurs for the purpose of producing the desalinated water that is sold to the customer (monitoring of the plant output).
SDP	Sydney Desalination Plant Pty Limited.
Verification Monitoring	The sampling and analysis that occurs in the distribution system for the purpose of confirming quality water is received by consumers at the tap.
VWA	Veolia Water Australia.
WSA	Water Supply Agreement.

