

# Application for a Drinking Water Services Licence Licence Summary

## **BHP**

# Western Australia Iron Ore Newman



*For publication*

**December 2020**

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## 1.0 INTRODUCTION

Prior to normalisation of Newman in 1990, water supply, power, sewerage and municipal services (roads, drainage, garbage collection etc.) were provided by the mining company BHP, in accordance with *Iron Ore (Mount Newman) Agreement Act 1964 (WA)*. Historically, Newman has provided accommodation for employees and families of BHP Billiton, as well as contracting companies and service providers that supported BHP's capacity to service its mining operations in the Newman area.

Normalisation was a recognition that Newman has grown into a regional centre providing services to the broader public, including other non-BHP mining operations in the area. Following normalization, water supply and sewerage services (collection, treatment and effluent disposal) were taken over by Water Corporation. In 1996 responsibility for the treatment of sewage and disposal of treated effluent was transferred to the Shire of East Pilbara.

However, because of the direct linkage between water supply (both potable and non-potable) and BHP's mining operations outside the Newman town boundaries, water abstraction, raw water transport and storage, and potable quality water treatment facilities were retained under the ownership and management of BHP, and certain potable and non-potable water services to mainly commercial and recreational concerns located outside the Newman town boundaries were also retained. Most of these services are provided without charge.

The provision of bulk treated water by BHP to the Water Corporation is managed under the Memorandum of Agreement (MoA) signed in 1991. The MoA is an approved proposal under the *Iron Ore (Mt Newman) Agreement Act*. It sets out the rights and obligations of the respective parties with regard to the Water Corporation's provision of water and sewerage to the community of Newman, which it provides in accordance with a water services licence under the *Water Services Act 2012*.

The *Water Services Act 2012* requires that a provider of a water service (including drinking water and sewerage services) must be licensed, or expressly exempt from licensing.

This document summarises the Water Services Licence Application submitted by BHP Billiton Iron Ore Pty Ltd to the Economic Regulation Authority (ERA) for the supply of drinking water services to the Water Corporation, the Mine Services Industrial Area, the Shire of East Pilbara WWTP and the Alinta Energy Power Station.

Although services are already in place and are fully operational, BHP Billiton Iron Ore Pty Ltd is applying for a Water Services Licence to comply with the requirements of the *Water Services Act 2012 (WA)*.

This application summary has been prepared in accordance with the ERA's Licence Application Guideline for Electricity, Gas and Water Licences (November 2016)

## 2.0 APPLICATION INFORMATION – NEW WATER LICENCE

### 2.1 Applicant Details

Legal	
Legal Name	BHP Billiton Iron Ore Pty. Ltd.
Trading Name	BHP Billiton Iron Ore Pty Ltd
ABN	46 008 700 981
ACN	008 700 981
Registered Office	171 Collins Street Melbourne Victoria 3000 Australia
Principal Place of Business	125 St Georges Terrace Perth Western Australia 6000 Australia

Contact Details	
Primary Contact Name	Cristien Magri General Manager, Non Process Infrastructure
Postal Address	PO Box 7642 Cloisters Square Perth WA, 6850
Email	cristian.ca.magri@bhp.com
Mobile	+61 417 501 270

Company Structure	
Legal Structure of Applicant	BHP Group Ltd. was incorporated in 1885 and is listed on the Australian Securities Exchange (ASX).  BHP Billiton Iron Ore Pty Ltd is a wholly owned subsidiary of BHP Group Ltd.
Place and Date of Incorporation	BHP Billiton Iron Ore Pty Ltd was first incorporated on 1 July 2000
Company Directors	WAIO Directors are: <ul style="list-style-type: none"> <li>• Brandon Craig – Asset President, WA Iron Ore</li> <li>• Adrian Paul Alexander Wood – Vice President Finance, Minerals Australia</li> </ul>

## 2.2 Proposed Licence Services

Proposed Licenced Service	
Type of licence application	<input checked="" type="checkbox"/> <b>Water Supply (potable)</b> This licence application covers the supply of drinking water services to the Water Corporation, Mine Services Industrial Area, the Shire of East Pilbara Wastewater Treatment Plant (WWTP) and the Alinta Energy Power Station.
	<input type="checkbox"/> <b>Sewerage services</b> Sewerage Services are not included in this licence application
	<input type="checkbox"/> <b>Water Supply (non-potable)</b> The supply on non-potable water for industrial usage is not included in this licence application.
	<input type="checkbox"/> <b>Drainage services</b> Drainage services are not included in this licence application.
	<input type="checkbox"/> <b>Irrigation services</b> Irrigation services are not included in this licence application.

## 3.0 CORPORATE INFORMATION

BHP Billiton Iron Ore Pty Ltd is a wholly owned subsidiary of the BHP Group, which is among the world’s top producers of major commodities, including iron ore, metallurgical and energy coal, conventional and unconventional oil and gas, copper, aluminium, manganese, uranium, nickel and silver.

In 2001, BHP Billiton Limited (previously known as BHP Limited), an Australian-listed company, and BHP Billiton Plc (previously known as Billiton Plc), a UK listed company, entered into a Dual Listed Company (DLC) merger. In November 2018, BHP Billiton Limited and BHP Billiton Plc changed their names to BHP Group Limited and BHP Group Plc, respectively. These entities and their subsidiaries operate together as a single for-profit economic entity (referred to as ‘BHP’ or ‘the Group’) with a common Board of Directors, unified management structure and joint objectives.

BHP Billiton Iron Ore Pty Ltd (also referred to as Western Australia Iron Ore or WAIO throughout this licence application) was first incorporated on 1 July 2000. However, BHP has been exploring iron ore deposits at Mount Newman in the Pilbara region of Western Australia since 1968.

WAIO’s core business is the management of iron mining operations in Western Australia. In doing so BHP Western Australia Iron Ore also oversees the management of town facilities. WAIO has a workforce of 9,037 to support iron ore operations. This includes approximately 7,977 staff to support Newman, Yandi, Jimblebar, Goldsworthy and POSMAC mining operations in the Pilbara region. The Newman operation at Mount Whaleback has 1,786 people involved in the day to day activities, including 43 Non Process Infrastructure (NPI) staff who are responsible for the majority of the drinking water supply operations.

## 4.0 FINANCIAL

WAIO is a wholly owned subsidiary of BHP Group Pty Ltd and is in a sound financial position to continue to provide the required drinking water services for Newman, as demonstrated by the Group's financial performance in 2020. The assets used to supply the drinking water services are already in place and fully operational. No up-front investment is required to commence operation of the service.

Evidence supporting the application has been provided to the ERA.

## 5.0 TECHNICAL INFORMATION

This licence application covers the supply of drinking water services to the Mount Whaleback Mine Services Industrial Area, the Shire of East Pilbara Wastewater Treatment Plant (WWTP) and the Alinta Energy Power Station. Bulk supply of drinking water to the Newman township is also covered but the reticulation and customer interfaces downstream of the transfer point are managed by Water Corporation. Water reticulation within Newman Operations West (Whaleback) and East (Eastern Ridge) mine sites is also excluded.

WAIO has the technical capabilities and resources to supply the required drinking water services at Newman. Evidence supporting the application has been provided to the ERA.

### 5.1 Location and Supply Area

Newman is located in the East Pilbara region of Western Australia. The town is approximately 455 km south of Port Headland and 1,190 km north-northeast of Perth on the Great Northern Highway (refer Figure 1). The town is situated in the upper reaches of the Fortescue River catchment, to the west of where the Ophthalmia Dam is built.

Newman was established as Mount Newman by Mt. Newman Mining Co. Pty Ltd (a subsidiary of BHP) in 1967 in accordance with the *Iron Ore (Mt Newman) State Agreement Act*, to support the development of iron ore deposits at nearby Mount Whaleback mine. Newman was gazetted a town site under the *Local Government Act 1960* in 1972.

Newman has a permanent population of approximately 4,500 people and the town supports a further 4,000 people who work on a fly-in fly-out basis. It has a semi-arid climate with an average annual temperature of 32.2°C. The average monthly maximum temperature varies significantly between December recording 39.3 °C and June recording only 23.0°C. The average rainfall for the area is 324.3mm, most of which falls in the summer months (Bureau of Meteorology, Newman Aero weather station 7176).

Rainfall averages 324 mm per year and is generally confined to intense events associated with tropical cyclones during the summer months and frontal systems in the winter months. The average pan evaporation at Newman is in excess of 3,200 mm per year.

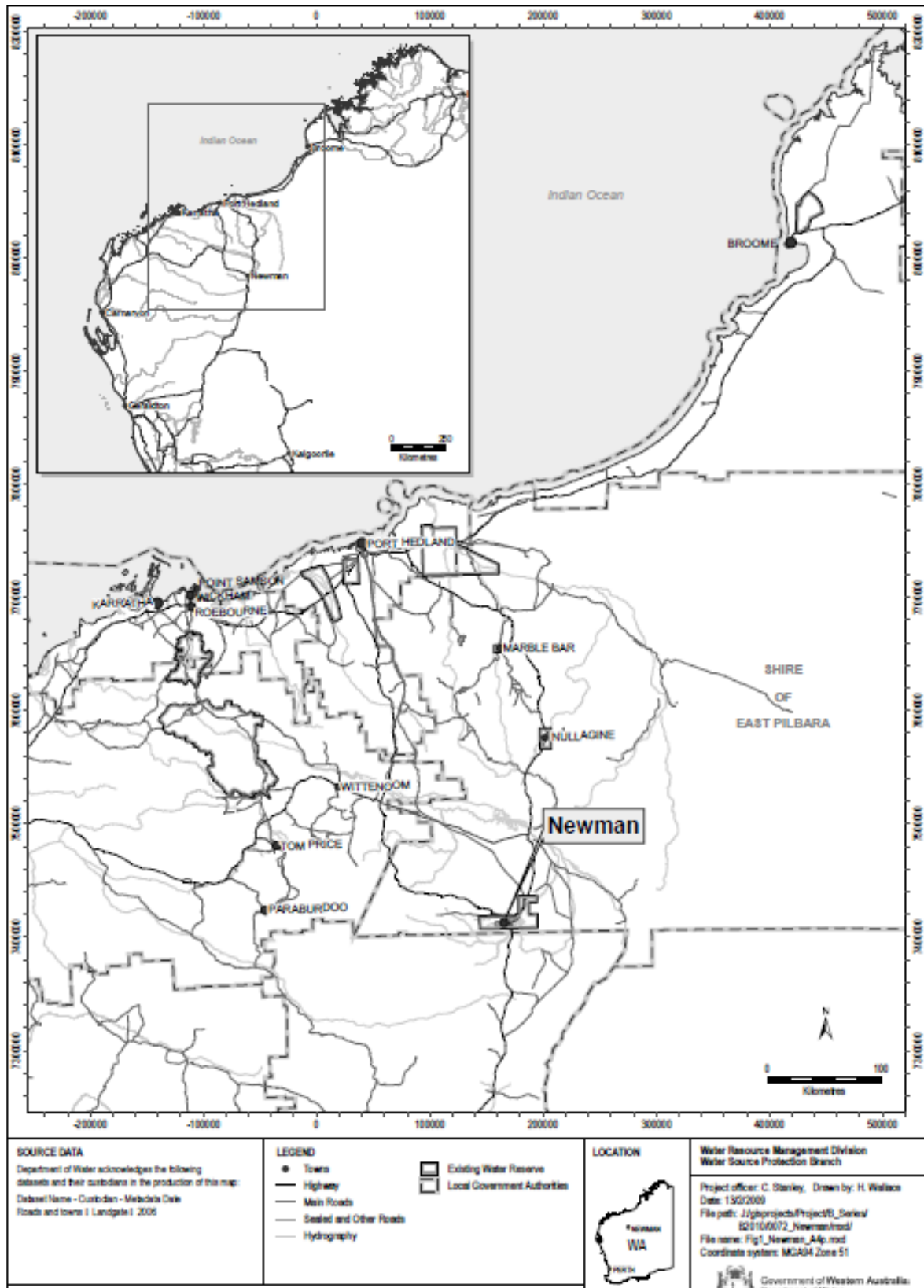


Figure 1: Map indicating the location of Newman township in Western Australia.

## 5.2 Drinking Water Assets

Newman's drinking water is sourced from the Ophthalmia borefields located approximately 10 km east of the Newman; and from the Homestead borefields located approximately 10 km north-west of Newman. Groundwater from both borefields is pumped to a raw water storage tank located at the Newman Water Treatment Plant (WTP)

Raw water is then pumped through the pre-treatment process by a series of low pressure pumps. The first treatment process consists of five activated carbon filters comprising of granular activated carbon media for absorption of natural organic material, taste and odour compounds, and synthetic organic chemicals.

The filtered water then passes through ultraviolet reactors and dosed with sodium hypochlorite for inactivation of microorganisms, before passing through a bank of four cartridge filters for further filtration. After the cartridge filters the majority of the water is pumped by the high pressure pumps through the two stage reverse osmosis (RO) trains to reduce total dissolved solids. A total of three trains can be operated at any time with a fourth provided as a standby. A Clean-in-Place process is used to clean the RO membranes to reduce fouling and scaling when required. A proportion of the filtered water (blending water) bypasses the ROs for the purpose of remineralisation of the permeate water in order to achieve the target quality.

Final disinfection of product water is achieved through further dosing of sodium hypochlorite prior to storage in the drinking water tanks. An Electro-Chlorination (EC) process is used within the NWTP and is designed to produce low strength sodium hypochlorite for disinfection of the treated water. The EC system, installed in 2019, consists of two trains which operate in a duty/standby arrangement. Water is supplied to the EC system from the drinking water storage tanks. The waste product from the EC process is transferred to the reject water tanks located within the NWTP and transferred to the Acid Rock Drainage evaporation basins.

Sodium hydroxide is also dosed to adjust the pH as required.

The drinking water from the Newman WTP is distributed to the township of Newman by the Water Corporation. The Water Corporation is responsible for the operation and maintenance of the Newman township water distribution system from the transfer point immediately downstream of the drinking water tanks. The Water Corporation is also responsible for all aspects of customer management.

WAIO is responsible for the distribution of drinking water to the Mine Services Industrial Area, Alinta Energy Power Station and the Shire of East Pilbara WWTP.

WAIO also distributes drinking water to Newman Operations West (Whaleback) and East (Eastern Ridge) mine sites, Ammonium Nitrate Storage Facility (ANSF) and Yarnima Power Station which are BHP owned and operated facilities and as a result are exempt from this application.

## 5.3 Asset Management System

BHP uses the "1SAP" asset management system for asset and work management processes. The work management processes defined in 1SAP provide WAIO with the ability to identify, plan, schedule, execute and manage multidisciplinary work activities. Work management processes are used for the development of repeatable work plans and strategies, reporting and investigating health, safety, environmental and other events and management of work execution (e.g. generation of work orders for planning and scheduling work, shutdown management and contractor management). 1SAP is also utilised for data collection and management, analysing performance and documenting asset condition.

BHP uses a 5-year strategic asset planning process that enables the definition of objectives and activities needed in order to deliver the required level of service. The plan and budget requirements are reviewed and updated annually. The data collected in 1SAP is used to enhance the planning and budgeting process

An asset management plan has been developed for the drinking water system.



## 5.4 Drinking Water Quality Management Plan

The Australian Drinking Water Guidelines 2011 incorporate the framework for the management of drinking water quality and provide guidance on quality parameters. A Newman Drinking Water Safety and Compliance Procedure has been prepared to provide direction on how drinking water quality at Newman is managed from source to supply.

There is also a Water Event Management Procedure that describes the specific provisions that WAIO shall implement to prepare for, respond to and recover from operational events and emergencies associated with drinking water infrastructure. Operational crises and emergencies which are supported by the information contained within this document include Incidents that compromise or may compromise water supply or water quality.

## 5.5 Customer Contracts and Services Information

Drinking water is provided to WAIO's customers under a number of commercial arrangements. Only Alinta Energy and Water Corporation are charged for the water service and the conditions for each are contained in a Shared Services Agreement and Memorandum of Agreement respectively.

Supply to the remaining customers is through commercial agreements for the supply of non-chargeable potable water or a Standpipe Agreement. No charges are applied to these customers.

There is a Newman Drinking Water Services Customer Charter that provides customers with a clear understanding of the standards of service that can be expected from WAIO, their responsibilities as a customer, and WAIO's obligations in providing the services. Customer assistance is available through a 24-hr service for all town services, which can deal with issues including service interruptions and plumbing issues such as water leaks/bursts.

WAIO has a customer feedback procedure that meets the minimum requirements of the Water Services Code of Conduct (Customer Service Standards) 2018.

## 5.6 Water Ombudsman

WAIO is committed to being a member of the Water Services Ombudsman Scheme (WA).

## 5.7 Additional Regulatory Approvals and other Regulatory Requirements

WAIO has the following licences and approvals in place:

- Department of Mines, Industry Regulation and Safety, Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007 for the storage and handling of chlorine gas and corrosive substance.
- Department of Water and Environmental Regulation, Rights in Water and Irrigation Act (1914) for the approval to take water from the Homestead and Ophthalmia borefields
- Department of Health, Medicines and Poisons Act (2014) and the Medicines and Poisons Regulations for the purchase of chlorine gas for application during drinking water treatment
- Environmental Protection Act (1986) for the registration of a water desalination plant.

## 5.8 Relevant Experience of the Applicant

WAIO has been operating and maintaining the drinking water system at Newman since the 1960's. There is a team of technicians, plumbers, supervisors and managers with a broad range of experience and qualifications that support the operation, maintenance and upgrading of the system.

Competency requirements for operations and maintenance personnel involved in source water, treatment and distribution are identified and documented in position profiles. Training plans are then established and implemented to ensure employees and contractors are competent.

Cert III training in Water Operations is being implemented for all WAIO plumbers based at Newman.

The use of sub-contractors is critical to the success of the WAIO operations. Sub-contractors are used to provide specialist services and equipment and are available to assist during times of peak workload and emergency response. Consultants are also engaged to assist with technical investigations, regulatory reporting and infrastructure design.

WAIO engages contractors who have completed appropriate training to undertake correct operation and maintenance of its assets. All contractors undergo site specific Health and Safety training and area specific inductions to be made aware of procedures and risks associated with the location in which they will be working.

## **6.0 PUBLIC INTEREST CONSIDERATIONS**

It would not be contrary to the public interest to issue a Water Services Licence to WAIO for the supply of water services to the town of Newman, pursuant to the *Water Services Act 2012* (WA)

### **6.1 Environmental Considerations**

#### **6.1.1 Rights in Water and Irrigation Act 1914: Ground Water Abstraction Licence**

Groundwater extraction from the Homestead and the Ophthalmia borefields is used for consumption and ore processing purposes. The extraction of this water is authorised under the Ground Water Licences (GWL177235 (2) and GWL65219(12)) with the Department of Water and Environmental Regulation. The licences were last issued in October 2015 and June 2018 and will expire on the 29 October 2025 and 25 June 2028 respectively.

Compliance with the reporting requirements of the Ground Water Licences (GWL177235 (2) and GWL65219(12)) has been consistently demonstrated.

### **6.2 Public Health Considerations**

The Newman township provides accommodation, affiliated services including contracting companies and government agencies that support the town and its capacity to service the iron ore mining operations in the vicinity. The supply of drinking water services employees, associated industries and the general public is essential to ensure the maintenance of the workforce for the Newman mining operations.

Health considerations for residents of the town, Mount Whaleback Mine Services Industrial Area, Alinta and Ophthalmia Power Stations and the Shire of East Pilbara WWTP have the added protection afforded by requirements under Mine Safety and Inspection Act and regulations through application of the Australian Drinking Water Guidelines, and Occupational Safety and Health legislation. WAIO adopts standards and procedures that are consistent across all aspects of their operations, whether directly associated with mine operations or with services that enable the mining operation, such as provision of accommodation, drinking water services

#### **6.2.1 Australian Drinking Water Guidelines**

The Australian Drinking Water Guidelines (ADWG) incorporate the framework for the management of drinking water quality and provide guidance on quality parameters. The Newman Drinking Water Safety & Compliance Procedure has been prepared to provide direction on how drinking water quality at Newman is managed from source to supply. There is also a Drinking Water Event Management Plan that references the above documents and contains specific responses for operational and drinking water quality events.

The Australian Drinking Water Guidelines incorporate the framework for the management of drinking water quality and provide guidance on quality parameters. The Newman Drinking Water Safety and Compliance Procedure has been prepared to provide direction on how drinking water quality at Newman is managed from source to supply.

The Draft Memorandum of Understanding between the Department of Health and BHP Billiton Iron Ore Pty Ltd for Drinking Water and the associated Binding Protocols will be finalised following approval of the Water Services Licence. These documents contain specific obligations for the:

- management of drinking water quality;
- audit of water supply systems;
- publication and exchange of information and data; and
- managing events of public health significance

There is also a Water Event Management Procedure and Emergency Response plans that references the above documents and contains specific responses for operational and drinking water quality events.

Operational drinking water events are those that impact the operation of the treatment plant or environment but have no immediate impact on public health. Operational events are therefore managed and reviewed internally and are not reported to any external agencies.

Drinking water related events that could pose a threat to public health are communicated to the Department of Health in accordance with agreed protocols.

### **6.2.2 Drinking Water Source Protection Plan**

Drinking Water Source Protection Plans are developed and regulated by the Department of Water and Environmental Regulation under a variety of Acts, including the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* and the *Country Areas Water Supply Act 1947*. The department develops drinking water source protection reports including assessments, plans and reviews, to ensure a multiple barrier approach to provision of safe drinking water supplies. Protecting the catchment is considered a critical first step in this multiple barrier approach.

A Drinking Water Source Protection Plan was developed in 2009 by the Department of Water (now Department of Water and Environmental Regulation), and was reviewed by the Department in 2014. The 2014 revised plan recommended a revised boundary for the Water Reserve.

The Homestead Potable Source Protection and Procedure Ophthalmia Potable Source Protection Procedure are WAIO documents that provide direction for the protection of the water sources and the Newman Water Reserve and also provides the monitoring required to ensure the strategies and procedures are effective and understood.

This procedures are an integral part of the overall framework applied by WAIO for managing drinking water quality at Newman. Current land uses, activities and their risks to the drinking water source are outlined in the Plan along with a Source Protection Strategy and a raw water quality monitoring program.

### **6.2.3 Water Quality Monitoring and Reporting**

WAIO has a well-established drinking water sampling programme, which includes monitoring for chemical, physical and microbiological parameters. Monitoring is conducted frequently in accordance with the Australian Drinking Water Guidelines and the program is approved by the Department of Health.

Water samples are submitted to a NATA accredited analytical laboratory. Results of routine monitoring are provided by WAIO to the Department of Health through quarterly reporting, Compliance with the reporting requirements has been consistently demonstrated.

### **6.2.4 Health Act 1911: Poisons Permit**

WAIO holds a permit (Permit 24916) under the Health Act 1911, to allow for the purchase of chlorine gas for the drinking water chlorination plant. This permit requires chlorine to be stored in a locked, ventilated storage area, and all personnel accessing this area and handling the chlorine are appropriately trained.