

PowerWater

Indigenous Essential Services
ANNUAL REPORT 2012



Corporate Structure

INDIGENOUS ESSENTIAL SERVICES BOARD

Mervyn Davies
Director

Judith King
Chairman

Andrew Macrides
Managing Director

Michael Hannon
Director

LEADERSHIP TEAM

Remote Operations core areas

Remote Operations	Water Operations	Electrical Operations	Mechanical Operations	Planning and Development	Retail Services	Regional Operations
Darryl Day <i>General Manager</i>	Duncan Griffin <i>Manager</i>	Stephen Benaim <i>Manager</i>	Dennis Ryan <i>Manager</i>	Elise Vervetjes <i>Group Manager</i>	Tammy Falconer <i>Manager</i>	Lee Morgan <i>Manager</i>
Oversees electricity, water and sewerage services.	Supply of water and wastewater services.	Transmission and distribution of electricity to customers.	Generation of electricity to meet the needs of customers.	Oversees service and infrastructure planning.	Manage retail services and contract management.	Southern region services operations.

Remote Operations support areas

Fuel Supply and Asset Performance	Energy Strategy and SCADA	Water Quality and Treatment	Sustainable Water and Energy
Scott Wheeler	Megan Jolley	Amy Dysart	Nerida Beard
Fuel supply and asset performance and regulatory reporting.	Energy planning, SCADA and communications.	Water and wastewater treatment planning and regulatory reporting.	Water resource management and water and energy efficiency programs.
Program Administration	Program Delivery	Land Development	Workforce/ Health and Safety
Linda Broomhall	Steve Walker	Lindsay Smith	John Harris Mick Carwright
Financial and contract management.	Program planning and delivery.	Infrastructure development connections and GIS.	Workforce planning, health safety and the environment.

2012

Contents

INTRODUCTION

Managing Director's report	2
Highlights of 2011-12	3
Outlook for 2012-13	4

OUR BUSINESS 6

Overview of our services	6
Electricity supply	10
Water supply	11
Sewerage services	12
Retail	13
Planning and development	14
Monitoring and control of infrastructure	15
Water and energy efficiency	15

MAJOR PROJECT ACHIEVEMENTS 16

OUR PERFORMANCE 22

Customer satisfaction	24
Reporting	25

OUR PEOPLE 26

Remote operations	27
Culture and leadership	28
Essential services operators	28
Indigenous employment	29

OUR PARTNERSHIPS 30

Regulatory relationships	31
Service agreements	32
Research and development	33

OUR GOVERNANCE 34

Funding arrangements	35
Financial statements	36

APPENDICES 58

Water quality test results
Water and energy efficiency
Providing safe water
Effective sewerage services
Providing reliable power
ESO training and employment

From the Managing Director

Indigenous Essential Services is unique. As a not-for-profit business, we provide utility standard electricity, safe and reliable water supplies and environmentally appropriate sewerage services to remote communities spread over the length and breadth of the vast expanse of Northern Territory, from the arid centre to the dry tropical north.



Andrew Macrides

Services are of similar standard to equivalent sized towns across Australia, and are essential to support the national challenge to Closing the Gap on Indigenous disadvantage, community wellbeing, social and economic outcomes.

Our achievements in 2011-2012 are a reflection of the dedication, commitment and professionalism of the Power and Water staff and contractors over the 12 months.

They are also the result of five years of strategic focus and implementation of plans to achieve sustainable service delivery, prudent investment in existing and new assets and building capacity in local communities.

The investment in water treatment technologies, systems, processes, capacity, knowledge and research has changed substantially the nature of water supplies where all water supplies now have continuous disinfection to ensure the water is safe to drink, with a commitment to continuous improvement in all aspects.

The sustainability of resources has been a key focus. The past five years has seen significant investment in evaluation, monitoring and developing groundwater sources that supply 90 per cent of the remote community water supplies.

In addition, significant focus has been given to water efficiency and energy efficient programs, at both a community and program level, to ensure resources are sustainable, and services are provided as efficiently as possible.

Innovation and investment in best practice technologies and affordable solutions is reflected in the Energy Sources Strategy - Towards 2020, resulting in new high penetration solar power stations, the introduction of wind power and the refurbishment of the solar dish power stations.

Best practice remote monitoring and control systems have been introduced to reduce costs, protect assets and improve services.

The operations are funded from \$28m collected in revenue from the sale of electricity, water supply and sewerage services and a grant of \$56 million from the Northern Territory Government through a purchaser-provider agreement with the Department of Housing, local Government and Regional Services.

IES also received capital grant funding of \$45m from the Northern Territory Government and Australian Government.

I would like to take this opportunity to recognise the staff involved in this journey of very significant change over the past five years and thank every one for their commitment, dedication and generous contribution of discretionary effort to improve the well being and economic prospects of remote communities.

A handwritten signature in dark ink, appearing to read 'Andrew Macrides'. The signature is written in a cursive, flowing style.

Highlights of 2011-12

- ▶ A 1.8ML water tank was built at Wurrumiyanga (Nguiu) and extra bores sunk to ensure the community has enough water to meet current and future needs
 - ▶ High levels of customer satisfaction maintained with scores across all satisfaction and performance rating over eight out of ten
 - ▶ Release of a Northern Territory wide water efficiency marketing campaign to encourage more efficient use of water in remote areas
 - ▶ Completed major construction of Power and Water's renewable energy showcase that integrates wind-solar-diesel to generate electricity
 - ▶ Continued improvement in our ability to remotely monitor and control essential infrastructure in remote communities
- ▶ Introduction of water fluoridation in two communities to help improve oral health outcomes by helping to prevent tooth decay
 - ▶ 90,500 water quality tests to verify water is safe for residents to drink
 - ▶ Employment of Indigenous Galiwin'ku residents to educate their fellow community members about using water more efficiently
 - ▶ Construction of three solar systems at Ti Tree, Kalkarindgi and Alpururulam (Lake Nash), which will produce a total of almost one megawatt (MW) of solar power later in 2012
 - ▶ Improved sewerage treatment in Angurugu.



Outlook for 2012-13

Power and Water's Framework for Success sets a **vision**, defines **purpose** and identifies the **values** that guide the behaviour of employees through their actions and decisions. The framework outlines the **six strategies** to achieve our vision.

- ▶ **Water for Healthy Communities** - This initiative is about safe drinking water supply, sustainable water management and wastewater management and includes expanding and replacing ageing water and wastewater infrastructure.
- ▶ **Energy and water efficiency** - Strengthened water conservation and energy efficiency programs for Territory Growth Towns and other priority communities will be established with input from local stakeholders.
- ▶ **Energy Source Strategy Towards 2020** - Provides an economic and technical assessment of options available for remote power generation with the objective of replacing diesel fuel as the primary source of power generation in remote towns and communities, minimising long-term service delivery costs and meeting community demand growth in an economic and environmentally sustainable manner.
- ▶ **Workforce capability** - Essential Services Operators (ESOs) retention, recruitment and training will be a priority as a retiring ESO workforce and an increase in complexity of power, water and sewerage infrastructure is addressed.
- ▶ **Financial sustainability** - Developing cost-recovery models that better reflect the cost of service delivery due to remoteness, extreme weather conditions and size of the communities. This would include improvements in the user-pays model.
- ▶ **Maximising operational efficiency** - Improving technology and remote communication allow for more cost-effective asset and maintenance management. Smart meters and Supervisory Control and Data Acquisition (SCADA), with improved control systems, will be introduced and IES will continue to support skills development to work with this technology.



FRAMEWORK FOR SUCCESS

OUR VISION

We aspire to be a leading utility business valued and respected in the community



OUR PURPOSE

We will focus on meeting the power, water and sewerage needs of our customers, whilst acknowledging the expectations of our shareholders



OUR VALUES

Safety

Protecting the health and well-being of ourselves, contractors and the general public to achieve zero harm.

Integrity

Engendering trust through open, honest and ethical behaviours.

Communication

Engaging in an open, positive and constructive way to obtain better individual and business outcomes.

Teamwork

Working together for a common purpose, achieving our goals in a supportive, respectful and enthusiastic manner.

Commitment

Leading by example, continually improving, accountable for our actions and carrying them out with passion and purpose.



Our Business

Power and Water Corporation has been providing electricity, water and sewerage services to customers across the Northern Territory since 1987. Indigenous Essential Services Pty Ltd (IES) is a not-for-profit subsidiary of the Corporation, formed to provide electricity, water and sewerage services to the 20 Territory Growth Towns and 52 remote communities. The Northern Territory Government primarily funds the delivery of essential services through appropriation from Department of Local Government, Housing and Regional Services (DLGHR). Revenue collected and other funding sources are also invested in services.

Power and Water aims to deliver reliable and equitable services to the Territory Growth Towns and remote communities in a competitive, efficient, safe and sustainable manner, while meeting environmental obligations, supporting regional development and Indigenous employment and training.

The unique combination of the integrated utility structure and years of experience in the Territory enables Power and Water to provide cost-effective essential services. This is achieved through:

- ▶ Integration of power, water and sewerage services to maximise cost efficiencies
- ▶ Coordination of routine maintenance, asset replacement and capital investment
- ▶ Management of a communications network for remote monitoring and control of infrastructure
- ▶ Appropriate and effective management of the interdependencies between energy, water and sewerage services
- ▶ Integration of operational delivery and planning
- ▶ Essential Services Operators in the towns and communities, who are on the ground to respond quickly and effectively.

This ability to maintain 'value for money' is particularly challenging as the majority of the communities we service are relatively small, sparsely located and experience a vast array of climatic conditions from the cyclone and storm-prone tropics of the north to the deserts of Central Australia.

"The issues we confront in Remote Operations, delivering services in remote localities, can be very different to those normally encountered. Our remote team can make a tangible difference in a community, delivering quality service with power, water and sewerage systems to NT remote communities. This is what makes our work very rewarding."

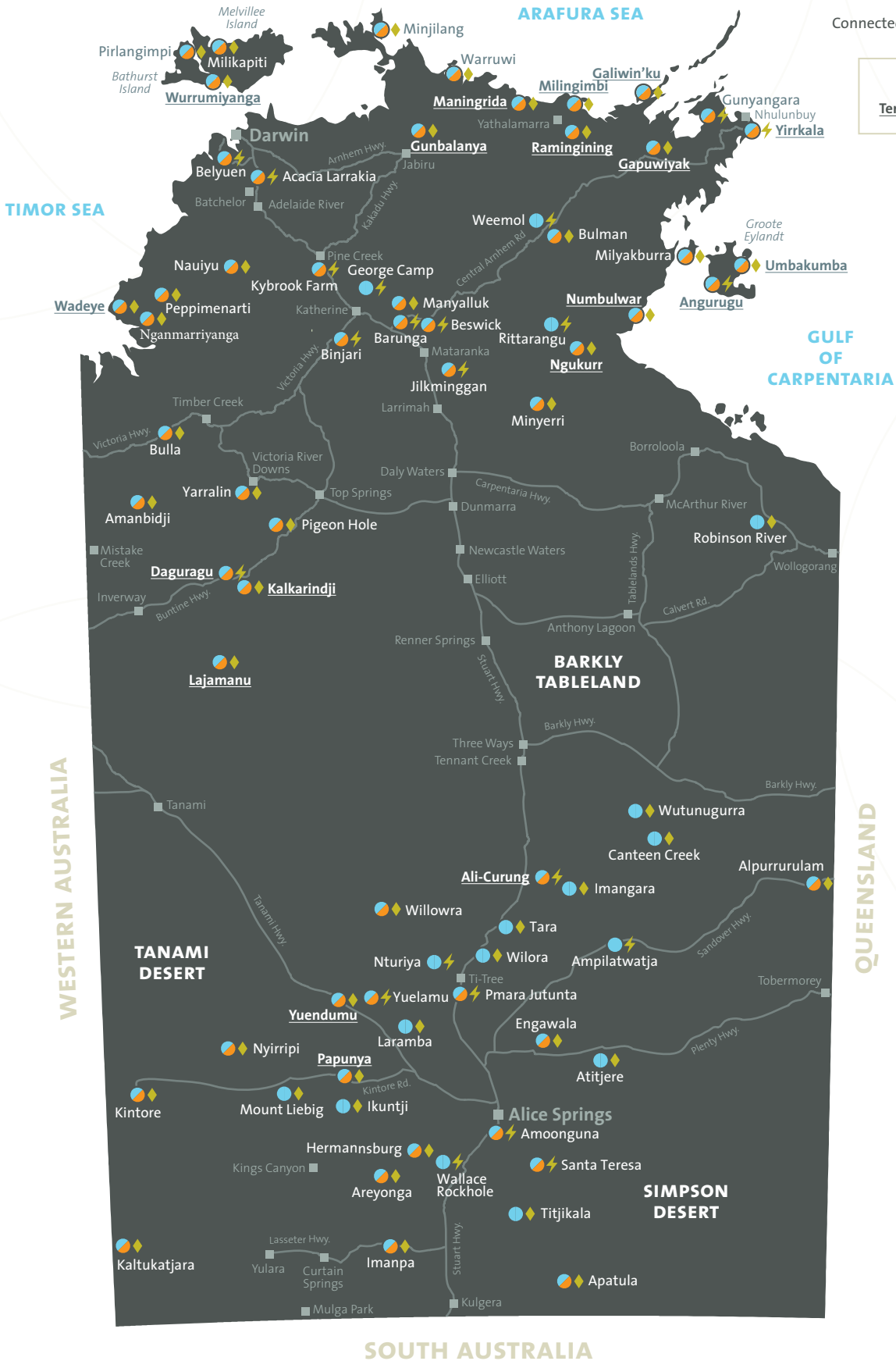
RALPH HUTCHINS

Water and Sewer Operations, Alice Springs

Territory Growth Towns and Remote Communities serviced by Indigenous Essential Services Pty. Ltd.

- Water Supply ●
- Water Supply and Sewerage Services ●
- Power Station ◆
- Connected to Electricity Grid ⚡

Remote Community
Territory Growth Town



The following provides an overview of the essential services and Power and Water's key initiatives for each of the 20 Territory Growth Towns and 52 remote communities serviced by IES Pty Ltd.

NORTHERN REGION

Acacia Larrakeyia (90) ⚡

- Plentiful groundwater source available
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Water township demand of 855 L/EP/d
- Secondary sewerage treatment, which seasonally discharges to the environment

Angurugu (883) ⚡

- Plentiful groundwater source, which is continuously monitored and extraction licence is pending. Also a plentiful surface water source available, which is licensed
- Good quality water, treated with soda ash, disinfected with gas chlorine and monitored weekly for microbes
- Township water demand of 883 L/EP/d
- Secondary sewerage treatment, which discharges to irrigation area

Belyuen (209) ⚡

- Plentiful groundwater source available, which is continuously monitoring and extraction licensed
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,155 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Galiwinku (2,101) ⚡

- Plentiful groundwater available
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand 949 of L/EP/d and local Ambassadors are promoting water conservation
- Secondary sewerage treatment, which discharges to the environment

Gapuwiyak (1,097) ⚡

- Limited groundwater source available, which is continuously monitored
- Very good quality water, disinfected with sodium hypochlorite and monitored weekly for microbes
- Township water demand of 515 L/EP/d
- Secondary sewerage treatment, which discharges to irrigation area

Gunbalanya (1,094) ⚡

- Limited groundwater source available, which is continuously monitored. Also limited surface water source available and extraction licence is pending
- Good quality water, disinfected with sodium hypochlorite and ultraviolet and monitored weekly for microbes
- Township water demand of 823 L/EP/d and efficiency program started
- Secondary sewerage treatment, which discharges to the environment

Gunyangara (276) ⚡

- Plentiful groundwater available
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,638 L/EP/d
- Secondary sewerage treatment provided by external service provider

Maningrida (2,463) ⚡

- Plentiful groundwater source available, which is continuously monitored
- Very good quality water, disinfected with calcium hypochlorite and ultraviolet and monitored weekly for microbes
- Township water demand of 500 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Milikapiti (454) ⚡

- Plentiful groundwater source available, which is continuously monitored
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,317 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Milingimbi (1,108) ⚡

- Very limited groundwater source available, which is continuously monitored
- Very good quality water, disinfected with sodium hypochlorite and monitored weekly for microbes
- Township water demand of 659 L/EP/d and conservation education program started
- Secondary sewerage treatment, which discharges to the environment

Milyakburra (133) ⚡

- Plentiful groundwater source available, which is continuously monitored
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 760 L/EP/d
- Secondary sewerage treatment, which seasonally discharges to the environment

Minjilang (323) ⚡

- Plentiful groundwater available
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,533 L/EP/d
- Secondary sewerage treatment, which is seasonally discharged to the environment

Naiyu (474) ⚡

- Plentiful groundwater source available, which is continuously monitored and extraction licence is pending
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 538 L/EP/d, efficiency awareness program in place
- Secondary sewerage treatment, which discharges to the environment

Nganmariyanga (Palumpa) (402)

- Plentiful groundwater source available, which is continuously monitored
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 780 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Numbulwar (833) ⚡

- Plentiful groundwater source available, which is continuously monitored
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 764 L/EP/d.
- Secondary sewerage treatment, which discharges to the environment

Peppimenarti (215) ⚡

- Plentiful groundwater source available, continuously monitored
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,470 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Pirlangimpi (442) ⚡

- Plentiful surface water source available and extraction licensed
- Very good quality water, filtered through sand, disinfected with sodium hypochlorite and ultraviolet and monitored monthly for microbes
- Township water demand of 975 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Ramingining (804) ⚡

- Plentiful groundwater source available and continuously monitored
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 756 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Umbakumba (424) ⚡

- Diesel power station
- Limited groundwater source available, which is continuously monitored
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,391 L/EP/d.
- Secondary sewerage treatment, which discharges to irrigation area

Wadeye (2,028) ⚡

- Plentiful groundwater source available, which is continuously monitored and extraction licence is pending
- Very good quality water, disinfected with gas chlorine, fluoride added and monitored weekly for microbes
- Township water demand of 793 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Waruwi (456) ⚡

- Limited groundwater source available, which is continuously monitored
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 825 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Wurrumiyanga (Nguiu) (1,577) ⚡

- Plentiful groundwater source available, which is continuously monitored
- Good quality water, disinfected with gas chlorine, fluoride added and monitored weekly for microbes
- Township water demand of 930 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Yirrkala (850) ⚡

- Plentiful groundwater available and extraction licence pending
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 740 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

KATHERINE REGION

Amanbidji (91) ⚡

- Limited groundwater source available
- Marginal quality water, disinfected with sodium hypochlorite monitored monthly for microbes
- Township water demand of 541 L/EP/d
- Secondary sewerage treatment, which discharges to an irrigation area

Barunga (335) ⚡

- Surface water source monitored by DNRETAS and licensed
- Good quality water, filtered through a cartridge system, disinfected with sodium hypochlorite and ultraviolet and monitored monthly for microbes
- Township water demand of 999 L/EP/d
- Secondary sewerage treatment, which discharges to environment

Beswick (465) ⚡

- Plentiful groundwater source available, which is continuously monitored and extraction licence pending
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 865 L/EP/d, efficiency awareness program in place
- Secondary sewerage treatment, which discharges to irrigation area

Binjari (230) ⚡

- Limited groundwater source available and extraction is licensed
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 463 L/EP/d
- Secondary sewerage treatment, which seasonally discharges to the environment

Bulla (128) ⚡

- Limited groundwater source available
- Limited surface water source available and extraction is licensed
- Marginal quality water, filtered through sand, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 615 L/EP/d
- Secondary sewerage treatment, which discharges to irrigation area

Bulman (300) ⚡

- Plentiful groundwater source available and extraction licence pending
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 608 L/EP/d
- Secondary sewerage treatment, which seasonally discharges to the environment

Dagaragu (270) ⚡

- Connected to Kalkarindji electricity grid
- Limited groundwater source available
- Good quality water, disinfected with gas chlorine and monitored monthly for microbes
- Township water demand of 1,039 L/EP/d
- Secondary sewerage treatment, which discharge through evaporation

Jilkminggan (330) ⚡

- Plentiful groundwater source available and extraction is licensed
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 448 L/EP/d.
- Secondary sewerage treatment, which discharges to irrigation area

Kalkarindji (406) ⚡

- Limited groundwater source available and extraction is monitored
- Good quality water, disinfected with gas chlorine and monitored monthly for microbes
- Township water demand of 1,019 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Kybrook Farm (74) ⚡

- Connected to Katherine electricity grid
- Limited groundwater source available and extraction is continuously monitored
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,110 L/EP/d
- Secondary sewerage treatment, which discharges to irrigation area

Additional information below

(533)

POPULATION

CONNECTED TO
ELECTRICITY GRIDDIESEL
POWER STATIONSOLAR-DIESEL HYBRID
POWER STATION

Remote Community

Territory Growth Town

Lajamanu (832)

- Limited groundwater source available and extraction is continuously monitored
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 777 L/EP/d
- Secondary sewerage treatment, which discharges to irrigation area

Manyallaluk (164)

- Plentiful groundwater source available and extraction licence is pending
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,046 L/EP/d

Minyerri (533)

- Limited groundwater source available, extraction is continuously monitored and licence is pending
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 591 L/EP/d and efficiency awareness program in place
- Secondary sewerage treatment, which discharges to irrigation area

Ngukurr (1,137)

- Limited groundwater source available and extraction is continuously monitored
- Surface water source available and extraction licence is pending
- Marginal quality water, filtered through sand, disinfected with gas chlorine and monitored weekly for microbes
- Township water demand of 986 L/EP/d
- Secondary sewerage treatment, which discharges to the environment

Pigeon Hole (199)

- Plentiful groundwater source available
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 313 L/EP/d
- Secondary sewerage treatment, which discharges to irrigation area

Rittarangu (88)

- Connected to Ngukurr electricity grid
- Plentiful groundwater source available and extraction licence is pending
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,374 L/EP/d
- Secondary sewerage treatment, which discharges to irrigation area

Robinson River (149)

- Limited groundwater source available
- Surface water source available and extraction is licenced
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 486 L/EP/d

Weemol (82)

- Connected to Bulman electricity grid
- Plentiful groundwater source available and extraction licence is pending
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 675 L/EP/d

Yarralin (279)

- Limited groundwater source available and extraction is continuously monitored
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 505 L/EP/d
- Secondary sewerage treatment, which discharges to irrigation area

BARKLY REGION

Ali Curung (411)

- Plentiful groundwater source available and extraction is licenced
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,094 L/EP/d and conservation education program in place
- Secondary sewerage treatment, which discharges through evaporation

Alpurrurulam (410)

- Limited groundwater source available
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 677 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Canteen Creek (135)

- Plentiful groundwater source available
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 756 L/EP/d

Imangara (216)

- Limited groundwater source available and extraction is licenced
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 110 L/EP/d

Nturiya (317)

- Connected to Ti Tree electricity grid
- Plentiful groundwater source available and extraction is licenced
- Marginal quality water, disinfected with ultraviolet and monitored monthly for microbes
- Township water demand of 108 L/EP/d

Tara (45)

- Plentiful groundwater source available and extraction is licenced
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 1,028 L/EP/d

Willowra (236)

- Plentiful groundwater source available
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 703 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Wilora (115)

- Limited groundwater source available and extraction is licenced
- Marginal quality water, disinfected with ultraviolet and monitored monthly for microbes
- Township water demand of 237 L/EP/d

Wutunugurra (234)

- Limited groundwater source available and extraction is continuously monitored
- Very good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 301 L/EP/d

SOUTHERN REGION

Amoonguna (332)

- Plentiful groundwater source available
- Good quality water, disinfected with gas chlorine and monitored monthly for microbes
- Township water demand of 376 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Amplatwatja (463)

- Connected to Arlparra electricity grid
- Plentiful groundwater source available
- Marginal quality water, disinfected with ultraviolet and monitored monthly for microbes
- Township water demand of 360 L/EP/d

Apatula (243)

- Plentiful groundwater source available and extraction is licenced
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 710 L/EP/d
- Secondary sewerage treatment, which seasonally discharges to the environment

Areyonga (299)

- Limited groundwater source available
- Adequate quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 339 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Atitjere (212)

- Plentiful groundwater source available
- Adequate quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 340 L/EP/d

Engawala (221)

- Limited groundwater source available and extraction is continuously monitored
- Adequate quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 242 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Ikuntji (154)

- Plentiful groundwater source available
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 468 L/EP/d

Hermansburg (694)

- Limited groundwater source available and extraction is continuously monitored
- Adequate quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 604 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Imanpa (176)

- Limited groundwater source available and extraction is continuously monitored
- Marginal quality water, aeration treatment, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 393 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Kaltukatjara (427)

- Plentiful groundwater source available
- Marginal quality water, aeration treatment, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 297 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Kintore (418)

- Limited groundwater source available and extraction is continuously monitored
- Marginal quality water, disinfected with ultraviolet and monitored monthly for microbes
- Township water demand of 415 L/EP/d and conservation education program in place
- Secondary sewerage treatment, which discharges through evaporation

Lamba (297)

- Plentiful groundwater available
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 560 L/EP/d

Mt Liebig (328)

- Limited groundwater source available
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 420 L/EP/d

Nyirripi (301)

- Limited groundwater source available
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 274 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Papunya (371)

- Plentiful groundwater source available
- Marginal quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 621 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Pmara Jutunta (278)

- Connected to electricity grid
- Plentiful groundwater source available;
- Adequate quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 236 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Santa Teresa (656)

- Connected to electricity grid
- Plentiful groundwater source available
- Adequate quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 515 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Titjikala (261)

- Plentiful groundwater source available
- Adequate quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 484 L/EP/d

Wallace Rockhole (106)

- Plentiful groundwater available
- Adequate quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 894 L/EP/d

Yuelamu (258)

- Limited groundwater source available and extraction is continuously monitored
- Limited surface water source and extraction is licenced
- Marginal quality water, filtered through sand, disinfected with calcium hypochlorite and ultraviolet and monitored monthly for microbes
- Township water demand of 235 L/EP/d and conservation education program in place
- Secondary sewerage treatment, which discharges through evaporation

Yuendumu (852)

- Limited groundwater source available and extraction is continuously monitored
- Good quality water, disinfected with sodium hypochlorite and monitored monthly for microbes
- Township water demand of 610 L/EP/d
- Secondary sewerage treatment, which discharges through evaporation

Electricity supply

IES Pty Ltd owns and operates 52 diesel-fired power stations and over 1,000 km of power distribution lines to deliver electricity to remote communities and Territory Growth Towns. Where customers are close to existing electricity services, power is purchased through agreements, such as with Rio Tinto Alcan at Gove and GEMCO on Groote Eylandt.

IES sources renewable energy at five communities. These systems use a range of solar technologies, including concentrating photovoltaic (CPV) dishes and flat plate photovoltaic (PV) solar systems and have an installed capacity of over 780 kilowatts (kW). Major solar systems have been installed in another three communities during 2012.

Power and Water will gradually displace distillate in many remote communities where it is economically efficient to do so. Our goal is long-term provision of reliable, cost-effective power supply and we will pursue a diversified energy source mix in the near term to allow a range of renewable and low emission energy source options to be assessed.

This Energy Source Strategy is underpinned by an economic assessment of available energy options for each community. The objectives of the strategy are to:

- ▶ minimise long-term service delivery costs
- ▶ meet demand growth
- ▶ make efficient use of emerging technologies and the availability of gaseous fuels
- ▶ prepare for the financial impacts of climate change.



FOR MORE INFORMATION SEE APPENDIX
PROVIDING RELIABLE POWER

Water Supply

Power and Water manages more than 250 production bores, 160 water storage tanks and 600 kilometres of water distribution systems to deliver water to households.

We obtain water from 70 isolated groundwater and surface water sources to supply drinking water to the Territory Growth Towns and remote communities.

In 63 towns and communities the water comes exclusively from groundwater contained in aquifers, which is extracted through production bores. Three communities exclusively use surface water sources, such as rivers, creeks and dams. The remaining five communities use a combination of groundwater and surface

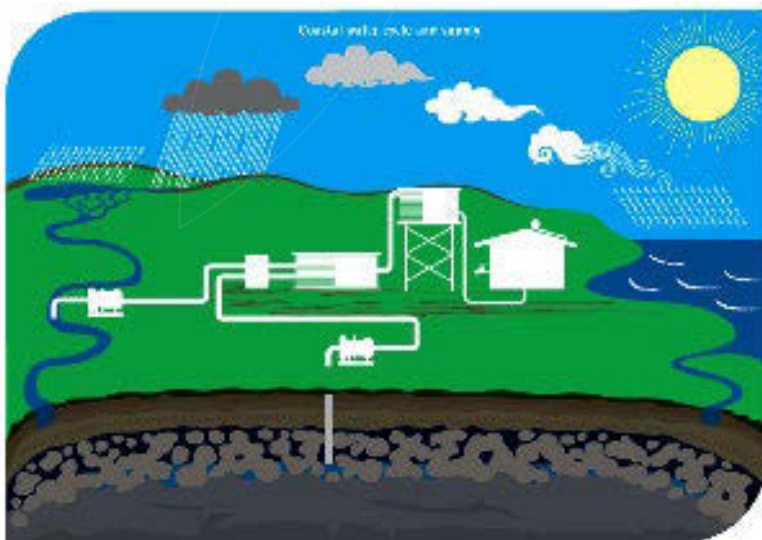
water sources. All water is disinfected before it is provided for drinking. The amount of water available and the natural quality of the water found in these diverse water sources presents significant challenges to ensure that each community has a safe and reliable water supply.

Power and Water has developed the Water for Healthy Communities program, which includes water quality, water sustainability and wastewater management, to ensure the provision of appropriate water and sewerage services in Territory Growth Towns and remote communities. This is based on the principles of risk management and focuses on making adequate safe water available for community use, with appropriately treated wastewater being returned to the catchments.

The objectives of Water for Healthy Communities are to:

- ▶ Protect public health
- ▶ Provide appropriate service infrastructure
- ▶ Minimise any adverse effects our operations have on the environment
- ▶ Manage water resources sustainability
- ▶ Enhance involvement with community residents and stakeholders in water management

To deliver drinking water to homes, a number of production bores pump water from the underground aquifers to a central storage area where it is disinfected and delivered via the distribution system using gravity.



FOR MORE INFORMATION SEE APPENDIX
PROVIDING SAFE WATER
WATER QUALITY TEST RESULTS

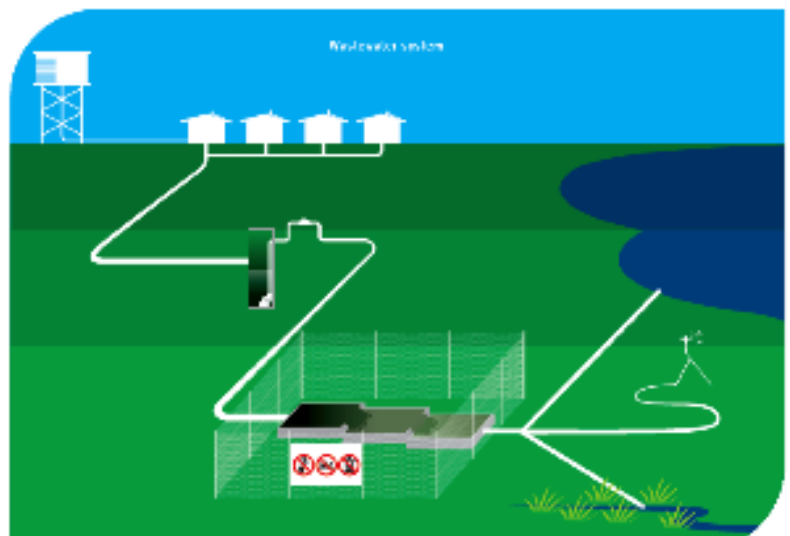
Sewerage services

Power and Water manages more than 300 km of reticulated sewerage pipe and 56 waste stabilisation pond treatment systems across 56 of the Territory Growth Towns and remote communities

Sixteen communities rely on on-site wastewater treatment systems, which are managed privately or as part of the public housing portfolio. These are primarily septic tanks with a soak-away to dispose the excess effluent. Three communities use a combination of these systems.

We have developed a Wastewater Management Strategy to improve wastewater treatment systems in 56 of the Territory Growth Towns and remote communities by 2015. The strategy gives direction on wastewater management including design, management, commissioning and ownership of the technology, public health issues, energy requirements, maintenance and security of assets, monitoring, approvals and stakeholder engagement.

Sewerage services are provided by taking wastewater off-site through pipes and pump stations to centralised waste stabilisation ponds for treatment and appropriate disposal.



FOR MORE INFORMATION SEE APPENDIX
EFFECTIVE SEWERAGE SERVICES

Retail

It is expected that use of electricity, water and sewerage services will continue to grow across the Territory Growth Towns and remote communities. Although population growth is a driver, many of the Northern Territory and Australian Government initiatives aimed at improving lifestyle and health outcomes will lead to greater use of energy and water services. Improved prosperity through programs to provide sustainable employment opportunities will also increase demand for services with embodied energy and water.

All customers pay for electricity, water and sewerage at the uniform Power and Water tariff, which is less than the actual cost to provide these services to the majority of the Territory Growth Towns and remote communities. Domestic Indigenous households are not charged for water and sewerage services, and electricity is purchased using prepaid power tokens.

The 2011-12 financial year saw electricity sales of \$23.1 million, water sales valued at \$3.1 million, and sewerage services valued at \$2.0 million.



Planning and development

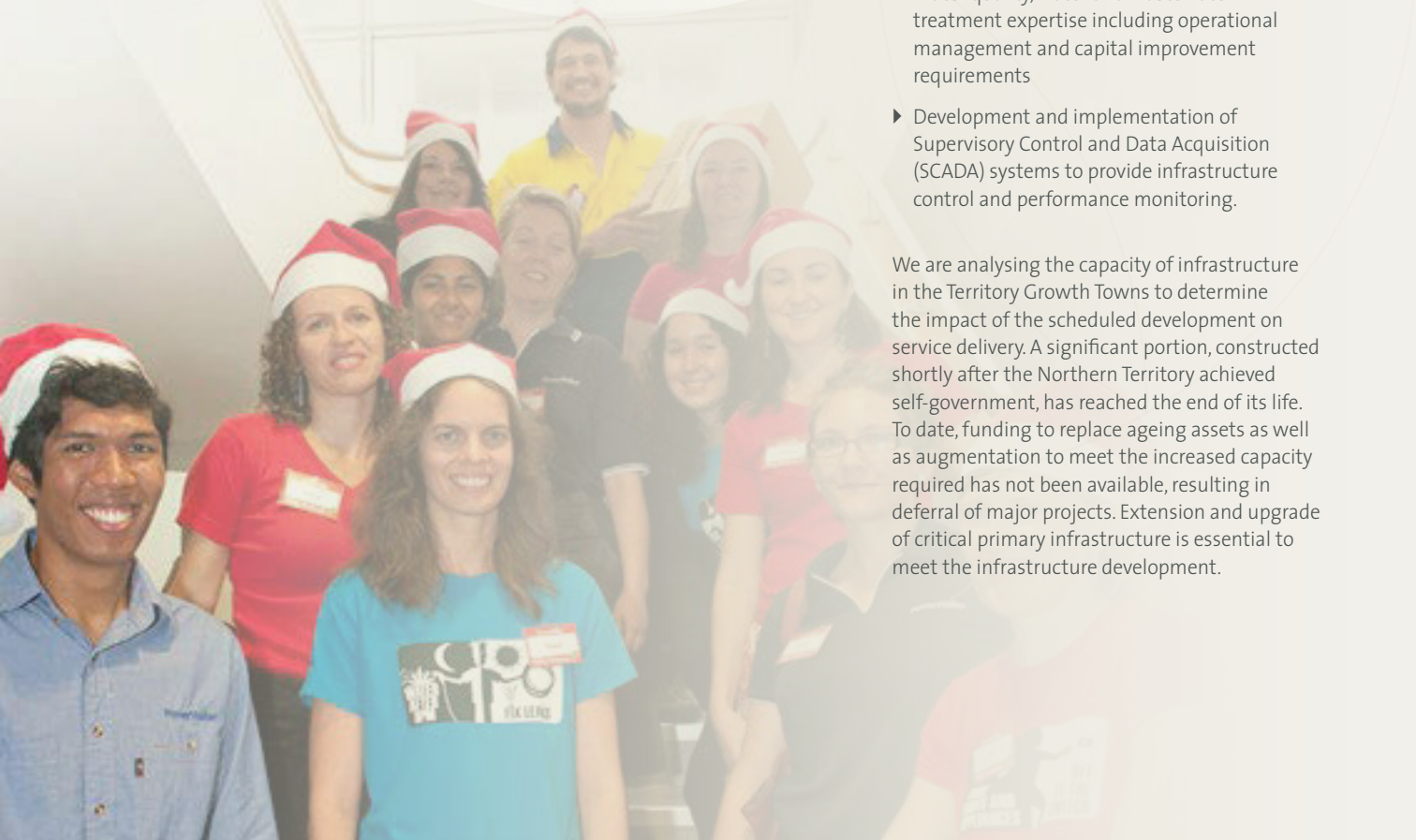
Over the years, Power and Water has shifted focus from infrastructure maintenance to a holistic utility approach in line with changing government and public expectations. This has resulted in growth in the areas of monitoring and management of water quality and water sources, monitoring and limiting the impact our operations have on the environment as well as planning for sustainability of assets and service delivery.

We have responded to changes in customer and government environs that have resulted in exponential growth in housing as well as health, education and other developments. To meet this growth in demand, we have had to increase capacity to deliver water and energy in some locations by augmenting the infrastructure.

To continue to meet requirements, planning, asset management, reporting and project management capabilities have been strengthened. Our planning and development team of technical and professional staff provides:

- ▶ Strategic planning for power, water and sewerage services including the expansion of our renewable and low emissions energy portfolio and capability
- ▶ Development of investment programs and funding submissions
- ▶ Project delivery capability for capital and minor works program including financial management and analysis
- ▶ Infrastructure management including reporting on system performance
- ▶ Customer service and support for various developers
- ▶ Contract management capability including the supply and delivery of distillate
- ▶ Program planning and management expertise including hydro-geological assessment, groundwater investigations and monitoring
- ▶ Development and delivery of water and energy efficiency programs through community engagement and consultation
- ▶ Coordination of legislative and regulatory reporting to relevant authorities for services
- ▶ Water quality, water and wastewater treatment expertise including operational management and capital improvement requirements
- ▶ Development and implementation of Supervisory Control and Data Acquisition (SCADA) systems to provide infrastructure control and performance monitoring.

We are analysing the capacity of infrastructure in the Territory Growth Towns to determine the impact of the scheduled development on service delivery. A significant portion, constructed shortly after the Northern Territory achieved self-government, has reached the end of its life. To date, funding to replace ageing assets as well as augmentation to meet the increased capacity required has not been available, resulting in deferral of major projects. Extension and upgrade of critical primary infrastructure is essential to meet the infrastructure development.



Monitoring and control infrastructure

Supervisory Control and Data Acquisition (SCADA) systems are deployed in 58 power systems and 21 water systems across the Northern Territory. This approach has proven to significantly improve the effectiveness of service delivery, decrease the time taken to respond to issues and reduce the cost of managing remote essential infrastructure.

Key aspects are:

- ▶ improved infrastructure performance and operating efficiency
- ▶ supply of reliable power services
- ▶ ensuring safe water supplies
- ▶ monitoring of sewerage system overflows
- ▶ enabling improved reporting on infrastructure performance
- ▶ supporting increasing regulatory requirements
- ▶ better support of community-based Essential Services Operators.

Water and energy efficiency

Power and Water's energy and water efficiency strategies encourage more effective use of water and electricity in remote areas to reduce long-term costs and support sustainable management of our water resources. A number of complementary initiatives are targeted at our diverse stakeholders, all of whom have a part to play in reducing water and energy usage and requirements for the future.



FOR MORE INFORMATION SEE APPENDIX
WATER AND ENERGY EFFICIENCY

Major Project Achievements

During 2012 Remote Operations established a project delivery team for major capital investment, supported by Power and Water's procurement, finance and property (leasing) teams.

As a result the following major projects have been achieved.



FOOTBALL HELPING PROMOTE WATER

NT Thunder players have continued to use their magical mix of footy clinics and educational sessions to help spread the word about water conservation in remote communities.

As water conservation ambassadors, the squad helped promote water conservation with visits to remote communities as part of a sponsorship arrangement with the Corporation.

Children of all ages joined group sessions learning about where water comes from, how it is tested and how it gets from under the ground all the way through to household taps and importantly, how to conserve it.

This win-win partnership is raising awareness of the importance of doing simple things to reduce water use.

Expanding populations and economic growth in remote communities has seen demand for water and electricity rise sharply. We provide services to more than 30 000 people in 20 Territory Growth Towns and 52 communities and outstations.

We are committed to reducing water and energy consumption and our work with NT Thunder is an important part of this conservation program.



SAVE WATER

Power and Water recognises the need to encourage more efficient use of water and energy in remote areas. Water efficiency is vital where the existing water resource is at risk of over-extraction, which could have a detrimental impact on the quantity and quality of the natural water resource including it drying up completely.

We are using a Territory-wide water efficiency campaign to increase the basic knowledge of all residents on the need for efficient use of water and energy. This is being achieved through a general marketing program on local media channels including broadcast of radio advertisements in six Indigenous languages, DVDs, 'Use Less Water' posters, promotional items including t-shirts, water bottles and fans. This information is available from Power and Water's website:

www.powerwater.com.au
 /sustainability_and_environment
 /remote_sustainability_initiatives
 /water_resource_management
 /use_less_water_campaign



GALIWIN'KU WATER CONSERVATION OFFICERS

Four Indigenous residents of Galiwin'ku have been employed to help spread the word on water conservation. The locals are being trained and mentored to educate their fellow community members about their water resource, the importance of positive water use behaviours and how to save in their homes and workplaces to achieve water conservation targets. The officers have uniforms and a range of communication materials to help spread key messages including 'talking books' in local language, a DVD series, posters, stickers and radio adverts. Working four days a week, the officers have also helped Power and Water identify and fix leaks through raising community awareness of leak reporting, to further increase efficiencies and reduce water losses.



This initiative demonstrates the benefits of partnering with local Community Development Employment Program provider, Community Enterprise Australia. The community benefits from the employment opportunities, an improved understanding of power and water services and how individuals can reduce their use. The project was also supported with direct funding from the Northern Territory Government.

SMART METERS IN GUNBALANYA

Following the success of a trial at Santa Teresa, smart meters were extended to Gunbalanya, a community that relies on a water source known to have a limited volume of water. The smart meters have been installed on all houses and buildings in the community as well as on key parts of the water distribution system.

'Smart' meters are electronic meters that automatically measure the flow of water and upload the information to a web interface for Power and Water to examine water use quickly and effectively.

The information gained will help detect leaks and support a future water and energy efficiency program, which will include community education and a household water audit and retrofit program. Selected commercial customers will be eligible for water and energy audits. This information is expected to be available in early 2012-13, allowing us to understand water use patterns and the implications of those patterns on sustainable extraction of water. The program is expected to be extended to other communities such as Milingimbi and Ali Curung in the future.

Over the next 12 months, Power and Water will work with West Arnhem Shire and the Department of Housing Local Government and Regional Services and use smart meters and community engagement processes to reduce water consumption to within sustainable limits. This household water efficiency program is funded by the Department of Regional Australia, Regional Development and Local Government and will provide important data on the effectiveness of water efficiency programs that may be extended to other locations in the future.

WURRUMIYANGA WATER PROJECT

Wurrumiyanga, on Bathurst Island, has a more secure water supply with the completion of a \$4.3 million upgrade.

The community, formerly known as Nguiu, is home to nearly 1500 people and has been identified as a Territory Growth Town.

A new, 1.8 million litre water tank and additional bores have been installed to meet current and forecast future needs.

The larger tank increases water supply and pressure to the new homes and amenities like the AFL field, training ground for the Tiwi Bombers.

The state-of-the-art chlorination system ensures the water is safe to drink, while fluoridation has been introduced to meet levels recommended by the Northern Territory Department of Health.

The facilities are about six kilometres from the community centre, giving room for the community to grow.

Wurrumiyanga was the first of five remote Indigenous communities to take part in the Strong Teeth and Healthy Bodies program with the Corporation and the Department of Health.

Fluoridated water will also be provided in Maningrida, Wadeye, Angurugu and Umbakumba.



HELPING TO IMPROVE HEALTH OUTCOMES

As part of an ongoing program in partnership with Department of Health, Power and Water installed new gas chlorination and fluoridation systems at Wurrumiyanga (Nguiu) and Wadeye (Port Keats). The new chlorination systems replaced old liquid chlorine systems, which were becoming problematic to manage as the communities grow. The new disinfection systems are more reliable and efficient and improve the safety of the water by reducing potential exposure of residents to disease causing micro-organisms. The fluoridation systems were introduced to add fluoride to the drinking water and improve oral health outcomes in the community by helping to prevent tooth decay.

Power and Water will roll out these new chlorination and fluoridation systems in other Territory Growth Towns over the next few years. In 2012-13 Maningrida, Angurugu, Umbakumba and Gunbalanya (Oenpelli) will receive a combination of these new treatment systems.



CONSTRUCTION OF THREE NEW WATER TREATMENT SYSTEMS

Construction has begun on the first of the three advanced water treatment systems to be installed in Ali Curung, Kintore and Yuelamu. This is the first installation of this type of advanced treatment technology, which is necessary to reduce levels of naturally occurring nitrate and fluoride as well as salinity and hardness, in remote communities.

The treatment systems will improve the water quality and security of water supplies. Once installed, the quality of the drinking water will be within the recommended levels of the Australian Drinking Water Guidelines.

Power and Water has been working very closely with the three communities to provide information, share understandings and ensure support for changes to water supplies. As well as community meetings, support material including posters have been displayed and distributed.

NEW NATURAL GAS-FIRED POWER STATION AT WADEYE

Power and Water is developing designs for a seven megawatt (MW) natural gas-fired power station at Wadeye. The new power station will be located out of the Wadeye township, close to the Bonaparte Gas Pipeline. It will replace the old diesel-fired power station, currently located in the middle of town, and provide greater generation capacity to meet the growing electricity needs.

Construction will commence in 2012-13 and is expected to be completed by 2013-14.

Two million litres of diesel will be saved every year by replacing the existing diesel power station with a natural gas-fired power station.

IMPROVING REMOTE MONITORING

Power and Water will continue to improve its remote monitoring and control systems in remote communities by establishing a faster more reliable communications network and fitting infrastructure with Supervisory Control and Data Acquisition (SCADA) systems. During 2011-12 five satellite and five fibre optic communications links ensured a new central database could be readily accessed for monitoring and analysis.

Ongoing investment in SCADA and communication systems will be made in conjunction with major capital investment. As an interim measure, we are installing telemetry systems on critical water assets such as production bores, tanks and sewerage pump stations until long-term SCADA systems are established. These systems enable us to remotely monitor and control supply systems and ensure that they run as effectively as possible and will automatically turn on and off equipment as required. This helps ensure precious water isn't wasted through water storage tank overflows and leaks.

PREPARED FOR EMERGENCIES

During emergencies such as cyclones, floods and other natural disasters, communication systems are often unavailable. To enable communication to be maintained with remote communities during these emergency events we have instigated the re-establishment of High Frequency (HF) radio systems.

In 2011-12, HF systems were re-commissioned or installed in key high risk sites across the northern region and the program will be extended to communities in the Katherine region as the next priority. This ensures we can maintain or reinstate essential services as quickly as possible following an emergency.

SOLAR POWER IN THREE MORE COMMUNITIES

Almost one megawatt of solar energy potential was installed across three systems in Ti Tree, Kalkarindji and Alpururulam (Lake Nash) this year.

Funding of \$14m was provided by the Australian and Northern Territory governments and Power and Water signed a 20-year power purchase agreement for electricity produced with Epuron Pty Ltd and its subsidiary TKLN Solar Pty Ltd. The flat plate photovoltaic (PV) solar systems are expected to provide up to 80 per cent of daily power requirements and in the long-term will save millions of litres of diesel fuel and significantly reduce carbon emissions.



The new solar systems will save over 440,000 litres of diesel and 1200 tonnes of carbon emissions each year.

In 2011-12, the solar panels and associated infrastructure were constructed and integrated with the diesel-fired power stations at each of the communities. The systems are in the process of being commissioned and are expected to provide power in 2013.

INTEGRATED RENEWABLE ENERGY SHOWCASE

As part of Power and Water's commitment to integrating alternate energy sources to generate electricity we have established a renewable energy showcase at Alpururulam (Lake Nash). The wind-solar-diesel hybrid power station includes both wind turbines and a flat plate photovoltaic (PV) solar system to generate electricity. The showcase demonstrates the complementary nature of solar and wind energy resources to generate electricity.

Power and Water has a 20-year power purchase agreement for the renewable energy produced by these systems with the owner Epuron.

The showcase wind-solar-diesel hybrid system is expected to be generating electricity by end 2012.



IMPROVING THE AMOUNT OF POWER FROM SOLAR

Power and Water operates concentrating solar photovoltaic (CPV) dishes in Hermannsburg, Lajamanu and Yuendumu. The solar power generated from these systems supplements the electricity supply provided by the diesel power stations to give a reliable supply of power to the communities. We are in the process of replacing the concentrating mirrors with new mirrors, which have added technology features that improve generation output and the life of the systems.



PLANNING FOR HERMANNSBURG ELECTRICITY GRID CONNECTION

Hermannsburg is a Territory Growth Town and demand for electricity is rapidly increasing. To cater for this, Power and Water is planning a powerline to connect Hermannsburg, and the outstations currently connected to the Hermannsburg network, to the Alice Springs power supply. The new powerline will stretch more than 90 kilometres and approximately 30 kilometres of existing powerline, that connects the outstations to the new powerline, will also be upgraded.

Once the powerline is in place, we will be able to decommission the old, less efficient diesel-fired power station at the community. In the long-term, this will save million of litres of diesel fuel and provide a secure power supply from the more efficient gas-fired station at Alice Springs and allow the communities to continue to grow.



NEW SEWERAGE PUMPING STATION AT WADEYE

Wadeye is a Territory Growth Town and significant investment continues in facilities including schools, health centres and stores. To ensure that the sewerage system continues to effectively remove sewage from the community, Power and Water has upgraded one of the sewerage pump stations and a portion of the sewerage reticulation system. The upgrades have significantly increased the capacity of the system and will meet the needs of the rapidly growing township into the future.

ADDITIONAL POWER IN SEVEN REMOTE COMMUNITIES

Three new diesel generators were installed as part of the upgrade to the Rammingining power station, which increased the total generation capacity from 1.6 megawatts (MW) to 2.4 MW. This ensures we can meet power demand if a unit needs to be offline for maintenance, as well as allowing generators to operate within their optimal range and use the least amount of fuel.

New and refurbished generators were also installed in Atitjere (Harts Range), Numbulwar, Papunya, Tara (Neutral Junction), Willowra and Wilora (Stirling). This has increased generation capacity at the communities to ensure that the stations are operated as efficiently as possible and meet the growing demand for power services.

NEW WASTEWATER TREATMENT SYSTEM AT ANGURUGU

New wastewater stabilisation ponds, sewage reticulation and a new sewer pump station have been installed at Angurugu as part of long-term plans to upgrade the sewerage system to meet the growing community’s needs. The ponds are located further away from the community, allowing the old system to be decommissioned and the site to be rehabilitated so the land may be returned to the community for use. Over the coming years, Power and Water will progressively replace the remaining ageing sewerage reticulation system.



MORE FUEL STORAGE AT GAPUWIYAK

In 2011-12, Power and Water completed a \$1.1 million project to improve diesel fuel storage at Gapuwiyak. The project involved increasing fuel storage capacity and upgrading the fuel bunding to meet national standards and reduce impact to the environment at both the barge landing and the power station. The existing storage tanks at the barge landing were relocated to the power station 25km away to increase the storage capacity by 50 000 litres. Two new storage tanks were installed at the barge landing to provide another 110 000 litres of fuel storage capacity. As part of the project, fuel transfer facilities and personnel access were significantly improved to further protect the safety of operators.



WATER FOR THE FUTURE

Angurugu, Maningrida, Hermannsburg and Umbakumba are Territory Growth Towns and more water is required to meet the growing needs of these communities. Over the last 12 months, Power and Water drilled a number of ground water bores to access underground aquifers, which can be used to provide future water supplies and to monitor the overall health of the aquifer.

Community	Provide water to the community in the future	To monitor the health of the water resource to ensure water is available for the future
Angurugu	2 new production bores	1 new monitoring bore
Maningrida	3 new production bores	5 monitoring bores rehabilitated
Hermannsburg	5 new production bores	2 new monitoring bores
Umbakumba	3 new production bores	3 new monitoring bores
Total	8 new production bores	9 monitoring bores

Our Performance

To provide electricity, water and sewerage services IES operates essential infrastructure including:

- ▶ electricity generation infrastructure comprising mostly of diesel power stations
- ▶ electrical distribution systems, up to and including customers' meters
- ▶ water infrastructure including surface water harvesting, groundwater production bores, bore-pumps, tanks, transfer pumping stations, water treatment and water supply reticulation systems, up to the customers' property boundaries
- ▶ sewerage infrastructure, starting at the customers' boundaries, including collection mains, pumping stations and wastewater treatment, reuse and disposal systems.

Statistical Summary

Indigenous Essential Services As at 30 June 2012

ELECTRICITY	Units	2007	2008	2009	2010	2011	2012
GENERATION							
Installed Capacity (including solar)	MW	51.02	55.95	59.61	69.41	71.25	73.86
Installed Capacity (solar only)	MW	0.74	0.69	0.79	0.79	0.79	0.77
Electricity Generated (including solar)	GWh	94.67	96.67	106.24	111.81	103.22	108.01
Electricity Generated (solar only)	GWh	1.56	0.97	0.81	0.66	0.27	0.17
Electricity Sent Out (including solar, purchases from PWC and purchases from private suppliers) ^{1,2}	GWh	93.12	97.31	123.12	129.10	118.80	124.69
Purchases from PWC (electricity purchased from PWC electricity grids and sent out to IES communities) ^{1,2}	GWh	n/a	n/a	11.03	11.95	9.42	10.15
Purchases from Private Suppliers	GWh	7.51	8.09	7.98	7.57	8.23	8.70
NETWORKS							
Distribution (22/11 kV & below) ³							
HV Overhead	km	373	349	473.23	513.23	578.6	578.6
HV Underground	km	0.5	5.36	5.42	5.42	7.1	7.1
LV Overhead	km	278	278.07	277.66	277.66	325.2	325.2
LV Underground	km	1	3.51	2.67	2.67	2.8	2.8
SWER All Voltages	km	87	87	86.7	87	87	87
Sales ⁴	MWh	60573	63665	104501	112029	112725	119540
Customers (ie. Services)	No. of Installations	7373		7540	8116	8478	8507

WATER	Units	2007	2008	2009	2010	2011	2012
Total Sourced Water	ML/day	9250.03	9845.74	9848	9791.59	9002.07	9680.38
Length of Mains ³	km	649	649	651.83	654	654	654
Customers (ie. Services) ⁵	No. of Meters	567	783	1341	2175	2213	2549

WASTEWATER	Units	2007	2008	2009	2010	2011	2012
Volume of Sewage Treated	ML	3551.96	3834.86	3940	3916.63	3600.83	2897.05
Length of Sewer Mains ³	km	303	302.5	305	307	303	303
Volume of Effluent Reused	ML	0	0	0	0	0	0
Customers (ie. Services) ⁵	No. of Installations	847	899	1122	1467	1793	1834

1 Electricity Sent Out and Purchases from PWC are estimated as this data is not metered. Changes have been made to the estimation methodology for this statistic, and therefore historical data has been restated.

2 From 2008-09, Electricity Sent Out includes Purchases from PWC (ie. electricity sent out to IES communities purchased from PWC power grids). This has not been included in previous years.

3 Distribution line lengths, and water and sewer main lengths have been estimated for 2011-12 using historical data. A review of the distribution line and main lengths is currently underway, and data is being moved to the Geographic Information System.

4 From 2008-09, Electricity Sales includes all prepayment and credit meter sales. Previous years data does not include all prepayment meter sales.

5 Due to changes to the calculation methodology for this statistic, historical data for 2010-11 and prior years have been re-stated.

Customer satisfaction

Power and Water undertakes annual customer satisfaction research among its stakeholders in Territory Growth Towns and remote communities.

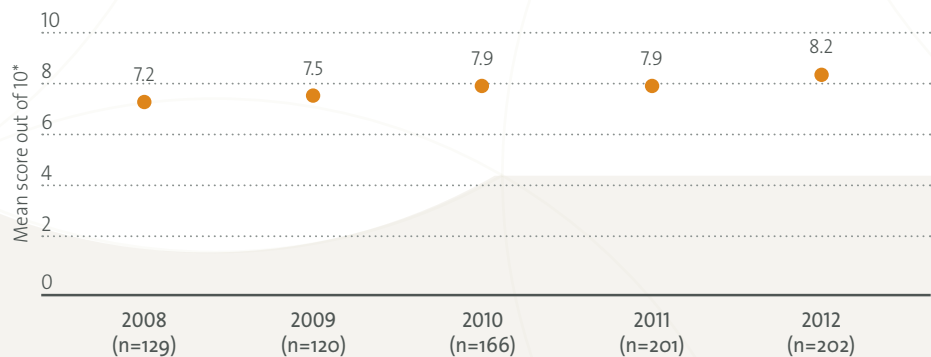
More than 200 customers including school principals, health clinic managers, Shire Service Managers, Australian Government business managers, police officers and community store managers, were interviewed over the phone between 27 October and 14 November 2011.

OVERALL SATISFACTION

Customers' overall satisfaction with Power and Water's services has been steadily increasing since we first started tracking it in 2007 and is now at a notable 8.2 out of 10 (see Figure 1).

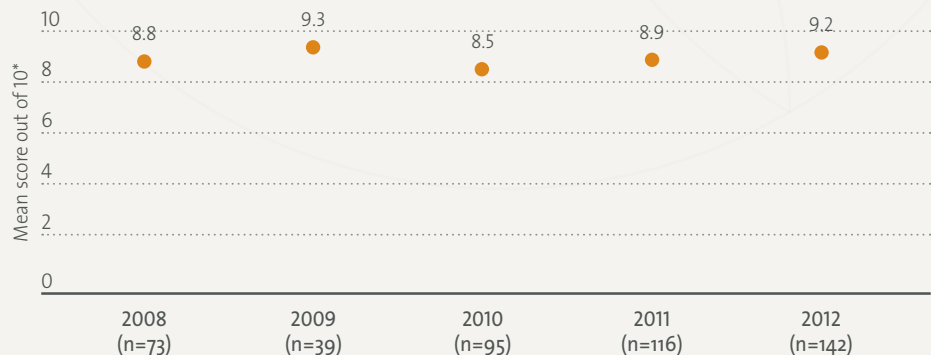
The 2012 customer satisfaction survey results indicate that Power and Water is trusted and appreciated and we are satisfying the needs of customers and stakeholders.

Figure 1: Overall Satisfaction with PWC Services and People



Our Essential Service Operators (ESOs) are a critical part of successfully providing power, water and sewerage services. This is demonstrated by a very positive score of 9.2 out of 10 given for the level of satisfaction with the ESOs' responsiveness or time taken to attend to unplanned service interruptions (see Figure 2).

Figure 2: Overall Satisfaction with Responsiveness of ESO to Unplanned Service Interruptions



Power and Water's investment in remote monitoring and control of essential infrastructure will further support the continued improvement in ESOs responsiveness as these systems automatically send 'alarm' signals to ESOs advising them of problems with critical infrastructure and enabling immediate responses.

Reporting

WATER RESOURCE EXTRACTION

Power and Water monitors the amount of water extracted from more than 70 water sources to supply drinking water to Territory Growth Towns and remote communities. Water extraction licences are required from the Department of Natural Resources Environment the Arts and Sport (NRETAS) as part of the Northern Territory Water Act (2008) for 28 communities.

Currently, Power and Water holds licences in 13 communities and has submitted 15 licence applications to NRETAS with approvals pending. These licences require the amount of water extracted be reported to the regulator to ensure set limits are not exceeded and the long-term sustainability of water resources are maintained.

In 2011-12, the amount of water extracted for one of the communities exceeded the licence limit. Bulla relies on both groundwater and the East Baines River to supply the community with water. The licence limit breach occurred due to a larger volume of water being extracted from the river to dilute and reduce the natural levels of barium in the groundwater source to ensure that the water was safe for consumption. Power and Water is working with NRETAS to reduce water consumption and is investigating new water sources or increasing licence extraction limits based on the sustainability of the resource.

WATER QUALITY

Power and Water has a Memorandum of Understanding (MoU) with the Department of Health for managing drinking water quality in its area of control. The MoU outlines actions that need to be taken when water tests identify issues, including when *E. coli* is detected in the distribution system, as part of the Drinking Water Quality Monitoring Program. In some instances, the Department of Health will take an extra step and issue a Precautionary Advice for Drinking Water to advise the community that drinking water should be boiled before consumption.

In 2011-12, *E. coli* detections occurred at Galiwinku, Gunbalanya, Jilkminggan, Nganmayanga (Palumpa), Papunya, Wallace Rockhole, Wilora, Weemol and Yarralin.

Of these detections, only one, Gunbalanya, indicated a significant risk to public health and the Department of Health (DoH) issued a Precautionary Advice for Drinking Water.

Significant levels of *E. coli* were detected in one of three samples taken from the water supply on 16 May 2012 and a Precautionary Advice was issued by the DoH. Power and Water immediately reconfirmed chlorine disinfection levels, collected more water samples and comprehensively flushed the water supply system. Analysis of subsequent water samples confirmed the water was clear from *E. coli* and other indicator bacteria. The Department of Health lifted the Precautionary Notice on 17 May. An investigation found the *E. coli* detection was due to contamination of the sample collection bottle and not the water quality. Power and Water has implemented preventative measures to avoid such an incident happening again.



The Remote Operations unit provides management, technical and professional services to IES, with administrative and technical support from Power and Water. This integrated structure allows operational delivery and planning teams to work closely together and ensures that capital investment programs are delivered as cost effectively as possible across the energy, water and sewerage business.

Our People

Every day the Remote Operations team overcomes the challenges of remoteness and climatic extremes to ensure that the integrity of services is maintained across more than 1.3 million square kilometres - nearly one sixth of Australia's land mass.



The key to successful delivery of electricity, water and sewerage services in Territory Growth Towns and remote communities is the Remote Operations team that make it happen. Across the Territory a team of multidisciplinary professionals and technical staff are committed to improving the environments of remote residents through reliable electricity, water and wastewater services.

More than 150 full time and relief Essential Services Operators, who work locally for shires or private contractors, are crucial to maintaining these services on the ground. This group is trained by Power and Water to perform specific tasks such as testing water quality or maintaining adequate fuel supplies to ensure the integrity of our infrastructure.

Remote operations

Over recent years, the approach to servicing Territory Growth Towns and remote communities has undergone immense change. This has been driven by the implementation of various initiatives through Australian and Territory Governments' partnerships which have included significant investment in Territory Growth Towns, establishing an increase in expectations of development and service standards, monitoring and reporting. Remote Operations has continued to maintain a team of multidisciplinary professional and technical people that not only ensure that the 'lights stay on' but also work to improve services, reduce costs, meet regulatory requirements and plan for the future.

Safety is one of Power and Water's core values and Remote Operations continually implements health and safety initiatives to protect ourselves, contractors and the general public.

Over the last 12 months, Remote Operations staff focussed on increasing participation in current Power and Water health and safety initiatives, such as the completion of Safe Act Observations and training. The team has also been working on implementing a new system to manage our workforce capability and planning. This has involved identifying 'benchmark' health and safety, licences and training required for each individual position and compared with existing skills to identify training requirements. For example, Certificate III in Water Operations is required for all Water and Sewerage Technical Coordinators, so a Registered Training Organisation has been engaged and will deliver the training program, which is expected to be completed in early 2013.

In 2011-12, Remote Operations implemented a number of new systems and processes to improve contractor health and safety performance. This included increasing documentation requirements during planning and delivery of projects and conducting training and audits to ensure compliance with Power and Water's procedures and legislative requirements.



32 YEARS AND STILL MORE TO COME



Ralph Hutchins started working with Transport and Works, Water Division in the NT in 1980. In the years that followed, the provider of essential services in the Territory changed its name numerous times and went through some fundamental changes in infrastructure and technology - Ralph has seen it all.

In 1995 Ralph joined the Remote Operations section of the Power and Water Authority in the Engineering Services Group. Prior to that he had worked for Water Services in both Darwin and Alice Springs where he was instrumental in creating a Service Development Team for power, water and sewerage services, and communicating water conservation messages to schools and the broader community.

Ralph's biggest highlight since joining Remote Operations has been his involvement - from conception to completion - in the National Aboriginal Health Strategy. He is passionate about improving living conditions for community residents and used this opportunity to deliver effective sewerage systems to 12 communities in the southern region. In his various roles, Ralph has always ensured the best possible outcomes for the communities are achieved.

Ralph has lived in Alice Springs for more than 25 years after transferring from Darwin. He said that his work and family are key in his life and the reason for living in Alice Springs. With his extensive knowledge of community infrastructure across the NT and the systems that are fundamental to our operations, we are glad he is still here.

Culture and leadership

In 2009 Power and Water embarked on a journey to embed a new corporate vision, purpose and values and, in turn, improve culture amongst staff. The culture is based on shared values, norms and expectations that guide our team members in how they approach their work, interact with each other and our customers.

Building our focus on achievement and pursuing a standard of excellence in a supportive and cooperative manner has been a strong driver in Remote Operations. We do this through workshops, creating shared understanding and objectives and building knowledge and skills in areas of technical expertise, as well as “softer” skills and leadership capacity.

In 2011, the Planning and Development group in Remote Operations received specific recognition from Power and Water’s Board of Directors for excellent results in the Organisational Culture Survey.

We are very proud supporters of programs designed to develop leadership and management capacity including the management development workshops. In the past two years nine managers successfully participated in the Emerging Leaders Program, which has resulted in key improvements in the overall management capacity and effectiveness of the business unit.

We continue to focus on recruitment of highly skilled and motivated people and have supported the Power and Water graduate program by hosting at least three graduates for each six month rotation.

Essential Services Operators

Essential Services Operators (ESOs) play a key role in keeping electricity, water and sewerage services operating in some of the Territory’s most remote areas, often in harsh and difficult conditions. Across the Territory there are over 150 ESOs who operate and maintain the supply systems through contracts with shires, councils or private contractors.

ESOs carry out a range of regular tasks as part of the operation and maintenance of essential services including water quality testing, diesel generator servicing and meter reading for retail services. They require a variety of skills, knowledge and experience in power, water and sewerage infrastructure, operations and customer services to safely, effectively and efficiently carry out all duties. Power and Water supports ESOs through a range of initiatives, including inductions, familiarisation courses, Occupation Health and Safety (OH&S) training, on-site training and mentoring.

Since 2011, Power and Water has introduced a strategic workforce capability plan for ESOs, which strives to build local capacity and provide targeted training and development opportunities to ensure they continue to provide a significant role in the delivery of power, water and sewerage services in remote areas.

Indigenous employment

Power and Water is working with Charles Darwin University (CDU), Group Training NT (GTNT) and the shires to target training and development opportunities for ESOs and support Indigenous employment. This is being achieved by facilitating a career pathway for ESOs, supported by Certificate II or III qualifications in essential service infrastructure delivery, with a particular focus on increasing the portion of ESOs that are Indigenous or identified as Aboriginal and Torres Strait Islander (ATSI).

Career path	Number of ESO Employed		Total ESOs	
	Non - ATSI	ATSI	Number	% ATSI
ESO Supervisor	20	5	25	3%
Qualified ESO	20	12	32	8%
Base Grade	39	54	93	36%
			150	47%



Our Partnerships

Power and Water understands that continuous improvement of services is achieved through strategic partnerships with government and key organisations.



We continued to work with the Department of Local Government, Housing and Regional Services (DHLGRS) on the “Improving Water Management in Small Water Supplies in the NT” project, which is focussing on Homelands (often also referred to as Outstations). The project aims to build capacity in a sustainable manner amongst service providers, communities and stakeholders and put processes in place to ensure that those involved in water supply management can manage the water and protect public health. Over the last 18 months, the project has coordinated 10 training workshops on water management for small water supplies and has used the Community Water Planner Field Guide as a tool to develop Water Management Plans for a number of Homelands.

Regulatory relationships

Power and Water maintains regulatory partnerships with the following departments and agencies:

THE DEPARTMENT OF HEALTH

The Department regulates drinking water quality in the Northern Territory. Power and Water works very closely with the Chief Health Officer to establish and review monitoring programs to verify water quality, incident response protocols and proposed actions to improve infrastructure for extraction, treatment, storage and distribution of potable water.

The Memorandum of Understanding between Power and Water and the Department of Health documents the commitment by both parties to providing drinking water. The MoU confirms the Australian Drinking Water Quality Guideline as the key reference for water quality management in Territory Growth Towns and remote communities.

This *Indigenous Essential Services Annual Report 2011-12* is provided to the Chief Health Officer in compliance with regulatory obligations.

THE DEPARTMENT OF NATURAL RESOURCES, ENVIRONMENT, THE ARTS AND SPORT (NRETAS)

The Department administers the *Water Act*, which provides for the investigation, allocation, use, control, protection, management and administration of water resources, and related purposes. Power and Water works with NRETAS to obtain licences and report on water extraction from production bores as well as pollution discharges to waterways from wastewater treatment ponds.

Service agreements

IES Pty Ltd has an agreement until 2013 with the Northern Territory Government, administered by the Department of Local Government, Housing and Regional Services (DHLGRS) as its agent, to help fund essential services in the communities.

The objectives of the agreement are to provide:

- ▶ Reliable and equitable services to Territory funded Territory Growth Towns and remote communities
- ▶ Effective management of the assets including optimal repair and maintenance programs
- ▶ Efficient financial management, providing low cost services, works, repair and maintenance programming
- ▶ Support of regional development and Indigenous employment and training.

Power and Water and DHLGRS work in close partnership to deliver services. The purchase of additional services by DLGHRs is on a fee-for-service basis. Ownership of water supply, sanitation and electricity assets is vested in IES Pty Ltd. The agreement with the Northern Territory Government establishes the services to be provided and specifies service level guidelines.



Research and development

As part of the continuous improvement of services, Power and Water partners and participates in a number of research and development initiatives. Key initiatives undertaken during 2011-12 included:

- ▶ Establishing the Daly River solar energy project, a partnership between Power and Water and Charles Darwin University's Centre for Renewable Energy. The project will determine how the amount of solar energy supplied to the community can be maximised through the optimisation of the diesel power station operation and load management. The project has received \$500,000 from the Australian Solar Institute and will begin at Daly River early 2012-13.
- ▶ Continued participation in "Application of capacitive deionisation in inland brackish water desalination" in conjunction with the National Centre for Excellence in Desalination and the University of South Australia. The two-year project involves optimising and trialling a new treatment technology that removes salts from drinking water to test its suitability and effectiveness for use in remote areas of the Northern Territory. Participation in the project is promoting the development of robust and cost effective treatment technologies to improve the taste of the water and reduce the formation of scale. This could be suitable for use in our remote communities in the future.
- ▶ Establishing the "Validation of maturation ponds in order to enhance safe and economical water recycling" project, in partnership with Charles Darwin University (CDU) as part of a larger national study led by Griffith University. Power and Water will support a post-doctorate research position at CDU to undertake field sampling and validation of one of the IES waste stabilisation ponds. The project will help us assess the risks and impacts associated with remote wastewater treatment systems and understand the risks associated with reusing or recycling treated wastewater. The expected outcomes include new techniques for determining the treatment efficacy of ponds; a user-friendly design, operation and maintenance model; and an evidence-based, decision-support tool for assessing potential human and ecological risks associated with reuse

Our Governance

MS JUDITH KING (CHAIRMAN)

BA, Foundation Fellow AICD

Ms King is Board Chairman and has been a director of Power and Water Corporation since its establishment. With extensive board experience in the private and public sector, she was formerly a director of Melbourne Water Corporation and Citipower and closely involved in the restructure and reform of the Victorian utility sector. Ms King's current appointments include National Ageing Research Institute and the Victorian Commission for Gambling Regulation. Ms King was awarded an Australian Centenary Medal in 2003.

MR ANDREW MACRIDES

Dip Bus(Mgt), B Bus(Acc), MBA, FCBA, FAICD

Mr Macrides was appointed Managing Director of the Power and Water Corporation in June 2007. Born and raised in Darwin, Mr Macrides has extensive government and management experience, beginning his career in the accounting field in 1978. Prior to joining Power and Water Corporation in 1998, he worked across a range of sectors in the NT Government, including health, housing, community services and tourism. Following corporatisation on 1 July 2002, Mr Macrides was appointed General Manager Business Services and Chief Financial Officer with the Power and Water Corporation, and in May 2003 was appointed Company Secretary in addition to his role as General Manager Business Services.

Indigenous Essential Services Pty Ltd is a wholly owned, not-for-profit subsidiary of Power and Water Corporation. Its Board of Directors are also members of Power and Water Corporation's Board of Directors and are:

MR MERVYN DAVIES

BEng(Elec - Power & Control) (Hons 1st class), MEngSc, BCom(Econ)

Mr Davies joined the Power and Water Corporation Board in May 2009. He has worked in all areas of electricity distribution, gaining extensive experience managing the businesses' financial and technical performance. He has held senior management positions at energy Australia, the country's largest electricity distribution company and his resume includes periods as Managing Director. Since leaving Energy Australia in 2002, Mr Davies has established a small engineering consultancy, specialising in electricity distribution system management. He has spent time developing and negotiating long-term capital expenditure plans and performance outcomes affecting the security of electricity supply to Sydney. He has University of New South Wales qualifications in engineering and economics.

MR MICHAEL HANNON AM

Mr Hannon was appointed to the Power and Water Board in August 2009. Mr Hannon is Chairman of the Hannon Group of Companies, a family-owned group operating public transport, property investment, crocodile farming and exporting businesses. Mr Hannon was born and permanently resides in Darwin and developed his career in the Northern Territory. The Hannon Group also has business interests in Queensland, Victoria and New South Wales. They employ more than 300 Territorians and that number again interstate.

Funding arrangements

In 2011-12 revenue collected from the sale of electricity, water supply and sewerage services was \$25.7 million (2010: \$23.2 million).

Total revenue for 2010-11 was \$114.5 million. This included \$52.3 million of recurrent grant funding (2010: \$45.0 million) and \$32.4 million of capital grant funding (2010: \$23.8 million) which was received from the Northern Territory Government. The capital grant is used to replace existing assets and maintain service standards.

Major cost drivers over the 2010-11 financial year resulted from:

- ▶ A continued focus on revenue protection resulting in electricity, water and sewerage revenue recovered from customers previously not billed. Sales revenue was down compared with budgeted targets for electricity and water. This was primarily due to less demand brought about by weather patterns, increased costs of electricity and water and education programs rolled out in communities. Sewerage services sales continued to grow and exceeded expectations due to audits carried out in remote communities
- ▶ The price of distillate continued to rise impacting energy costs. At 30 June 2012 the weighted average cost of distillate was \$0.9942 against the budgeted cost of \$0.8950
- ▶ Repairs and Maintenance saw a marked increase in 2011-12 to \$16.1m (2011: \$13.6m) due to unforeseen water and sewerage reticulation failures at Galiwinku and Angurugu and damaged generation plant at Wurrumiyanga



Financial Statements

Indigenous Essential Services Pty Limited
(ACN 105 269 636)

For the year ended 30 June 2012

INDEX

Directors' report	37
Directors' declaration	39
Lead auditor's declaration of independence	40
Independent audit report to the members	41
Statement of comprehensive income	43
Statement of changes in equity	43
Statement of financial position	44
Statement of cash flows	45

NOTES TO THE FINANCIAL STATEMENTS

1 Company information	46
2 Statement of significant accounting policies	46
3 Revenue and expenses	50
4 Cash and cash equivalents	51
5 Trade and other receivables	51
6 Inventories	51
7 Property, plant and equipment	52
8 Trade and other payables	53
9 Contributed equity	53
10 Retained earnings	53
11 Commitments	53
12 Operating Lease Arrangements	53
13 Financial instruments	54
14 Related party information	56
15 Economic Dependency	56
16 Auditor's remuneration	57
17 Director and executive disclosures	57
18 Events after the reporting period	57

DIRECTORS' REPORT**Indigenous Essential Services Pty Limited for the year ended 30 June 2012**

The directors present their report together with the financial report of the Indigenous Essential Services Pty Limited (the Company) for the year ended 30 June 2012 and the auditor's report thereon.

Directors

The directors of the Company at any time during or since the end of the financial year were:

Ms Judith King	Director since 26 June 2003; Appointed Chairman 1 July 2007.
Mr Andrew Macrides	Director since 1 July 2007.
Mr Michael Hannon	Director since 1 August 2009.
Mr Mervyn Davies	Director since 4 May 2011.

Company Particulars

Indigenous Essential Services Pty Limited is an Australian proprietary company, incorporated and operating in Australia.

Principal Registered Office and Principal Place of Business:	Level 2 Mitchell Centre 55 Mitchell Street Darwin NT 0800
---	---

Company Secretary: Mr Kelvin Strange

Principal Activities

The Company was formed on 26 June 2003 and commenced operations on 1 July 2003.

During the course of the financial year the principal activities of the Company as a not-for-profit entity were to provide electricity, water and sewerage services to remote Indigenous communities in the Northern Territory.

Controlling Entity

The Company's controlling entity is the Power and Water Corporation, a government owned corporation pursuant to the *Government Owned Corporation Act 2001*. In this report, the controlling entity is referred to as Power and Water.

Operating and Financial Review

The Company's net profit for the period of \$25,908,420 was higher than last year's (2011: \$19,998,338) principally due to additional capital funding being spent during the course of the financial year. Capital funding spent included receipts from the current financial year and funds rolled over from the previous financial year.

Changes in state of affairs

In the opinion of the directors, other than the matters mentioned above there were no significant changes in the state of affairs of the Company that occurred during the financial year under review.

Dividends

As a not-for-profit entity the Company paid no dividends during the financial year (2011: nil).

DIRECTORS' REPORT

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

Environmental Regulation

The Company's operations are subject to various environmental regulations under both Commonwealth and Territory legislations.

The Company regularly monitors compliance with environmental regulations. The directors are not aware of any significant breaches during the period covered by this report.

Events Subsequent to Reporting Date

There has not arisen in the interval between the end of the financial year and the date of this report any item, transaction or event of a material or unusual nature likely, in the opinion of the directors of the Company, to affect significantly the operations of the Company, the results of those operations, or the state of affairs of the Company in future financial years.

Future Developments

At the date of this report, there are no developments in the operations of the Company that, in the opinion of the directors, are likely to significantly impact the Company during the 2013 financial year.

The service contract between the Company and the Northern Territory Government to construct and maintain assets required to provide electricity, water and sewerage services to remote Indigenous communities in the Northern Territory expired on 30 June 2010. The contract was extended for a period of three years from 01 July 2010 to 30 June 2013. A review is currently being undertaken to determine the future impact on the Northern Territory Budget of delivering essential services to remote towns and Indigenous communities across the Territory, through a comprehensive analysis of the historical costs and forecast future costs of service delivery, including future demand growth.

Lead Auditor's Independence Declaration Under Section 307C of the Corporations Act 2001

The lead auditor's declaration of independence is set out on page 6 of the financial report.

Indemnification and Insurance of Directors and Officers

Indemnification

The Northern Territory Government has indemnified the directors of IES Pty Limited's controlling entity Power and Water as well as the directors of Power and Water's wholly controlled entities for all liabilities that may arise from their position, except where the liability is incurred or arises out of actual dishonesty on the part of the director. The indemnity covers the full amount of any such liabilities, including costs and expenses.

Insurance Premiums

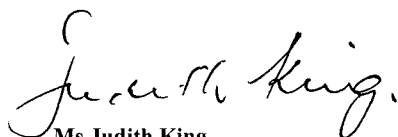
The following insurance policies were purchased by Power and Water to cover its directors and officers, and those of its subsidiaries. In accordance with normal commercial practices, under the terms of the insurance contracts, the nature of the liabilities insured against and the amount of premiums are confidential.

Group Personal Accident Insurance

Professional Indemnity Insurance

Directors' and Officers' Liability

This report is made in accordance with a resolution of Directors pursuant to s.298(2) of the Corporations Act 2001.



Ms Judith King
Director and Chairman



Mr Andrew Macrides
Managing Director

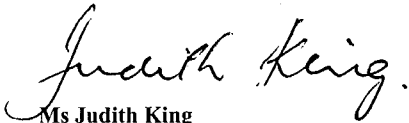
Dated at Darwin this 26th day of September 2012

DIRECTORS' DECLARATION**Indigenous Essential Services Pty Limited for the year ended 30 June 2012**

In the opinion of the directors of Indigenous Essential Services Pty Limited ("the Company"):

- (a) the financial statements and notes, set out on pages 9 to 23, are in accordance with the *Corporations Act 2001*, including:
- (i) giving a true and fair view of the financial position of the Company as at 30 June 2012 and its performance for the year ended on that date; and
 - (ii) complying with Accounting Standards in Australia; and
- (b) there are reasonable grounds to believe that the Company will be able to pay its debts as and when they become due and payable.

Signed in accordance with a resolution of directors made pursuant to s.295(5) of the Corporations Act 2001.



Ms Judith King
Director and Chairman



Mr Andrew Macrides
Managing Director

Dated at Darwin this 26th day of September 2012



Northern Territory Auditor-General's Office

Auditing for Parliament

IES Ind Ltr

The Board of Directors
Indigenous Essential Services Pty Limited
Level 2, Mitchell Centre
55 – 59 Mitchell Street
Darwin NT 0800

26 September 2012

Dear Members of the Board,

Indigenous Essential Services Pty Limited

In accordance with section 307C of the Corporations Act 2001, I am pleased to provide the following declaration of independence to the directors of Indigenous Essential Services Pty Limited.

As auditor for the audit of the financial statements of Indigenous Essential Services Pty Limited for the financial year ended 30 June 2012, I declare that to the best of my knowledge and belief, there have been no contraventions of:

- (i) the auditor independence requirements of the Corporations Act 2001 in relation to the audit; and
- (ii) any applicable code of professional conduct in relation to the audit.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'F. McGuinness', with a horizontal line extending to the right.

F McGuinness
Auditor-General for the Northern Territory



Auditor-General

Independent Auditor's Report to the Members of Indigenous Essential Services Pty Limited Year ended 30 June 2012

Page 1 of 2

I have audited the accompanying financial report of Indigenous Essential Services Pty Limited, which comprises the statement of financial position as at 30 June 2012, the statement of comprehensive income, the statement of cash flows and the statement of changes in equity for the year ended on that date, notes comprising a summary of significant accounting policies and other explanatory information, and the directors' declaration as set out on pages 9 to 23.

Directors' Responsibility for the Financial Report

The directors of the company are responsible for the preparation of the financial report that gives a true and fair view in accordance with Australian Accounting Standards and the *Corporations Act 2001* and for such internal control as the directors determine is necessary to enable the preparation of the financial report that is free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

My responsibility is to express an opinion on the financial report based on my audit. I conducted my audit in accordance with Australian Auditing Standards. Those standards require that I comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control, relevant to the entity's preparation of the financial report that gives a true and fair view, in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial report.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Auditor's Independence Declaration

In conducting my audit, I have complied with the independence requirements of the *Corporations Act 2001*. I confirm that the independence declaration required by the *Corporations Act 2001*, which has been given to the directors of Indigenous Essential Services Pty Limited, would be in the same terms if given to the directors as at the time of this auditor's report.



Auditor-General

Page 2 of 2

Opinion

In my opinion, the financial report of Indigenous Essential Services Pty Limited is in accordance with the *Corporations Act 2001*, including:

- (a) giving a true and fair view of the company's financial position as at 30 June 2012 and of its performance for the year ended on that date; and
- (b) complying with Australian Accounting Standards and the Corporations Regulations 2001

A handwritten signature in blue ink, appearing to read 'F. McGuinness'.

F McGuinness
Auditor-General for the Northern Territory
Darwin, Northern Territory

26 September 2012

Statement of Comprehensive Income

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

	Note	2012 \$	2011 \$
Continuing Operations			
Revenue from sale of goods	3 (a)	26,197,330	24,565,789
Revenue from rendering of services	3 (b)	96,310,618	85,838,795
Interest revenue		2,076,800	1,261,482
Other Income	3 (c)	605,074	2,881,442
Total revenue and income		125,189,822	114,547,508
Raw materials and consumables used		35,428,434	30,572,026
Depreciation and amortisation expenses		13,455,146	16,167,825
Other expenses	3 (d)	50,397,822	47,809,319
Surplus for the year from continuing operations		25,908,420	19,998,338
Surplus for the year		25,908,420	19,998,338
Total comprehensive income for the year		25,908,420	19,998,338
Surplus attributable to Owner of the Company		25,908,420	19,998,338
Comprehensive income attributable to Owner of the Company		25,908,420	19,998,338

The statement of comprehensive income is to be read in conjunction with the notes to the financial statements.

Statement of Changes in Equity

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

	Note	2012 \$	2011 \$
Contributed Equity			
Balance at the beginning of the year		10	10
Balance at the end of the year	9	10	10
Retained Earnings			
Balance at the beginning of the year		210,666,432	190,668,094
Surplus for the year		25,908,420	19,998,338
Balance at the end of the year	10	236,574,852	210,666,432
Total equity		236,574,862	210,666,442

The statement of changes in equity is to be read in conjunction with the notes to the financial statements.

Statement of Financial Position

Indigenous Essential Services Pty Ltd as at 30 June 2012

		2012	2011
	Note	\$	\$
CURRENT ASSETS			
Cash and cash equivalents	4 (a)	55,266,383	62,520,946
Trade and other receivables	5	8,304,577	1,739,673
Inventories	6	6,799,437	5,891,031
Other assets		11,674	-
Total current assets		70,382,071	70,151,650
NON-CURRENT ASSETS			
Property, plant and equipment	7	229,757,155	204,770,991
Total non-current assets		229,757,155	204,770,991
Total assets		300,139,226	274,922,641
CURRENT LIABILITIES			
Trade and other payables	8	63,564,362	64,256,199
Total current liabilities		63,564,362	64,256,199
Total liabilities		63,564,362	64,256,199
Net assets		236,574,864	210,666,442
EQUITY			
Contributed equity	9	10	10
Retained earnings	10	236,574,852	210,666,432
Total equity		236,574,862	210,666,442

The statement of financial position is to be read in conjunction with the notes to the financial statements.

Statement of Cash Flows

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

	Note	2012 \$	2011 \$
CASH FLOWS FROM OPERATING ACTIVITIES			
Receipts from customers		28,601,210	26,166,159
Payments to suppliers		(93,785,511)	(71,498,399)
Receipt of Government Grants		94,409,964	104,253,556
Interest received		2,039,274	1,267,202
Net cash provided by operating activities	4 (b)	31,264,937	60,188,518
CASH FLOWS USED IN INVESTING ACTIVITIES			
Proceeds from sale of property, plant and equipment		(78,193)	(188,146)
Purchase of property, plant and equipment		(38,441,307)	(34,352,379)
Net cash used in investing activities		(38,519,500)	(34,540,525)
Net increase/(decrease) in cash and cash equivalents		(7,254,563)	25,647,993
Cash and cash equivalents at beginning of year		62,520,946	36,872,953
Cash and cash equivalents at end of year	4 (a)	55,266,383	62,520,946

The statement of cash flows is to be read in conjunction with the notes to the financial statements.

Notes to the Financial Statements

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

1) Company Information

Indigenous Essential Services Pty Limited (the Company) is a not-for-profit proprietary company operating and domiciled in Australia. On 26 September 2012, Directors authorised the issue of the Company's financial report for the year ended 30 June 2012.

2) Statement of significant accounting policies

The significant accounting policies which have been adopted in the preparation of this report are:

(a) Statement of compliance

This general purpose financial report has been prepared in accordance with Accounting Standards and Interpretations and the *Corporations Act 2001*. Accounting Standards include Australian equivalents to International Financial Reporting Standards (A-IFRS).

Adoption of new and revised Accounting Standards

In the current year, the Corporation has adopted all of the new and revised Standards and Interpretations issued by the Australian Accounting Standards Board (the AASB) that are relevant to its operations and effective for the current annual reporting period. Where applicable, details of the impact of the adoption of these new accounting standards are set out in the individual accounting policy notes below.

Standards and Interpretations effective for the first time in the current period

The following new and revised Standards and Interpretations have been adopted in the current period and have affected the amounts reported or the presentation/disclosure in these financial statements:

Standard or Interpretation

AASB 2009-12 'Amendments to Australian Accounting Standards' and AASB 124 'Related Party Disclosures (revised December 2009)'

Nature of Change to Accounting Policy

The application of AASB 124 'Related Party Disclosures' provides a partial exemption from related party disclosure requirements for government-related entities, clarifies the definition of a related party and includes an explicit requirement to disclose commitments involving related parties.

AASB 2010-4 'Amendments to Australian Accounting Standards arising from the Annual Improvements Process'

Makes amendments to seven different Standards. The amendments largely clarify the required accounting treatment where previous practice had varied.

Amends AASB 101 'Presentation of Financial Statements' to clarify the content of the statement of changes in equity in such that an entity may present the analysis of other comprehensive income by item either in the statement of changes in equity or in the notes to the financial statements.

Amends AASB 7 'Financial Instruments: Disclosures' to encourage qualitative disclosures in the context of the quantitative disclosure required to help users to form an overall picture of the nature and extent of risks arising from financial instruments. It also clarifies the required level of disclosure around credit risk, collateral held and provides relief from disclosure of renegotiated loans.

The following new and revised Standards and Interpretations have also been adopted in these financial statements. Their adoption has not had any significant impact on the amounts reported in these financial statements as they do not result in any changes to the Company's existing accounting policies. However, they may affect the accounting for future transactions or arrangements:

Standard or Interpretation

AASB 2010-5 'Amendments to Australian Accounting Standards'

Nature of Change to Accounting Policy

The application of AASB 2010-3 makes amendments to AASB 3(2008) 'Business Combinations' to clarify that the measurement choice regarding non-controlling interests at the date of acquisition is only available in respect of non-controlling interests that are present ownership interests and that entitle their holders to a proportionate share of the entity's net assets in the event of liquidation. All other types of non-controlling interests are measured at their acquisition-date fair value, unless another measurement basis is required by other Standards. The Group did not have any business combinations.

AASB 2010-6 'Amendments to Australian Accounting Standards – Disclosures on Transfers of Financial Assets'

The application of AASB 2010-4 has not had any material effect on amounts reported in the financial statements.

AASB 1054 'Australian Additional Disclosures', AASB 2011-1 'Amendments to Australian Accounting Standards arising from the Trans-Tasman Convergence Project'

This standard is the consequence of Phase 1 of the joint Trans-Tasman Convergence project of the AASB and the Financial Reporting Standards Board (FRSB) of New Zealand Institute of Chartered Accountants, harmonising Australian Accounting Standards and New Zealand equivalents to IFRSs, with a focus on eliminating differences between the Standards in each country relating to for-profit entities.

It sets out the Australian-specific disclosures for entities that have adopted Australian Accounting Standards. This Standard contains disclosure requirements that are additional to IFRSs in areas such as compliance with Australian Accounting Standards, the nature of financial statements (general purpose or special purpose), audit fees, imputation (franking) credits and the reconciliation of net operating cash flow to profit (loss).

Notes to the Financial Statements

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

Standards and Interpretations issued not yet effective

At the date of authorisation of the financial report, the following Standards and Interpretations were in issue but not yet effective. The Company does not intend to adopt any of these pronouncements before their effective dates. Initial application of these Standards and Interpretations will not affect the reported results or position of the Company as they do not result in any changes to the Company's accounting policies. Adoption will, however, result in changes to information currently disclosed in the financial statements.

<i>Standard or Interpretation</i>	<i>Effective annual reporting periods beginning on or after</i>	<i>Expected to be initially applied in the financial year ending</i>
AASB 2010-8 'Amendments to Australian Accounting Standards – Deferred Tax: Recovery of Underlying Assets'	1 January 2012	30 June 2013
AASB 2011-9 'Amendments to Australian Accounting Standards - Presentation of Items of Other Comprehensive Income'	1 July 2012	30 June 2013
AASB 10 'Consolidated Financial Statements'	1 January 2013	30 June 2014
AASB 9 'Financial Instruments', AASB 2009-11 'Amendments to Australian Accounting Standards arising from AASB 9' and AASB 2010-7 'Amendments to Australian Accounting Standards arising from AASB 9 (December 2010)'	1 January 2013	30 June 2014
AASB 12 'Disclosure of Interests in Other Entities'	1 January 2013	30 June 2014
AASB 13 'Fair Value Measurement' and related AASB 2011-8 'Amendments to Australian Accounting Standards arising from AASB 13'	1 January 2013	30 June 2014
AASB 2011-7 'Amendments to Australian Accounting Standards arising from the Consolidation and Joint Arrangements standards'	1 January 2013	30 June 2014
AASB 1053 'Application of Tiers of Australian Accounting Standards' and AASB 2010-2 'Amendments to Australian Accounting Standards arising from Reduced Disclosure Requirements'	1 July 2013	30 June 2014
AASB 2011-2 'Amendments to Australian Accounting Standards arising from the Trans-Tasman Convergence Project – Reduced Disclosure Requirements'	1 July 2013	30 June 2014
AASB 2011-4 'Amendments to Australian Accounting Standards to Remove Individual Key Management Personnel Disclosure Requirements'	1 July 2013	30 June 2014

(b) Basis of preparation

The financial report is prepared on an historical cost basis. Cost is based on the fair values of the consideration given in exchange for assets.

These accounting policies have been consistently applied by the Company unless otherwise stated and are consistent with those of the previous year.

The financial report is presented in Australian dollars.

(c) Use and revision of accounting estimates

In the application of the Company's accounting policies, management is required to make judgements, estimates and assumptions about carrying values of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimates are revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

(d) Revenue recognition

Revenue is recognised to the extent that it is probable that the economic benefits will flow to the Company and the revenue can be reliably measured. The following specific recognition criteria must also be met before revenue is recognised:

Sale of goods

Revenue from the sale of goods is recognised (net of discounts and allowances) when the significant risks and rewards of ownership of the goods have passed to the buyer and the costs incurred or to be incurred in respect of the transaction can be measured reliably. Risks and rewards of ownership are considered passed to the buyer at the time of delivery of goods to the customer. Sale of goods includes estimates for unbilled consumption of electricity and water as at reporting date.

Rendering of services

Revenue from the rendering of services is recognised when the service is provided, having regard for the costs incurred in providing those services.

Government grants

Revenue in the form of government grants is received from the Northern Territory Government. Government grants are assistance by the government in the form of transfers of resources to the Company in return for past or future compliance with certain conditions relating to the operating activities of the Company.

Government grants are not recognised until there is reasonable assurance that the Company will comply with the conditions attaching to them and the grants will be received.

Where the grant relates to an expense or capital item, it is recognised initially as deferred income in the statement of financial position and recognised as income over the periods necessary to match the grant on a systematic basis to the costs that it is intended to compensate.

Interest Revenue

Interest revenue is recognised as it accrues.

Notes to the Financial Statements

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

(e) Goods and services tax

Revenues, expenses and assets are recognised net of the amount of goods and services tax (GST), except where the amount of the GST incurred is not recoverable from the taxation authority. In these circumstances, the GST is recognised as part of the cost of acquisition of the asset or as part of the expense.

Receivables and creditors are stated with the amount of GST included. The net amount of GST recoverable from, or payable to, the taxation authority (through Power and Water) is included as a current asset or liability in the statement of financial position.

Cash flows are included in the statement of cash flows on a gross basis. The GST components of cash flows arising from investing and financing activities which are recoverable from, or payable to, the taxation authority (through Power and Water) are classified as operating cash flows.

(f) Income tax consolidation

The Power and Water Corporation is the head entity in a tax-consolidated group comprising all of its wholly-owned subsidiaries apart from Indigenous Essential Services Pty Limited. Indigenous Essential Services Pty Limited was removed from the National Tax Equivalent Regime effective 1 July 2003 as a not-for-profit entity.

(g) Cash and cash equivalents

Cash assets include cash on hand and at bank.

(h) Trade and other receivables

Trade and other receivables are recognised and carried at the original invoice amount less an allowance for any uncollectible amounts. Trade receivables are on 14 day terms and other receivables are on 30 day terms.

(i) Inventories

Inventories are carried at the lower of cost and net realisable value. Costs are assigned to inventory based on the weighted-average purchase cost of bringing each item to its present location and condition. Net realisable value represents the amounts expected to be realised from the use of the inventory.

(j) Property, plant and equipment

Acquisition of assets

The carrying value of assets are originally stated at cost less accumulated depreciation and any accumulated impairment losses. Such cost includes the cost of replacing parts that are eligible for capitalisation when the cost of replacing the parts is incurred. Subsequent expenditure is capitalised only when it is probable that the future economic benefits associated with the expenditure will flow to the Company. Ongoing repairs and maintenance is expensed as incurred.

Where an asset is acquired at no cost, or for nominal cost, the cost is its fair value as at the date of acquisition.

Property, plant and equipment assets are measured at deemed cost being the fair value of assets at the transition date to AIFRS on 1 July 2004, less accumulated depreciation and less any impairment losses recognised at that date.

Depreciation and amortisation

Complex assets

The components of major assets that have materially different useful lives, are effectively accounted for as separate assets, and are separately depreciated.

Useful lives

All assets, excluding freehold land, have limited useful lives and are depreciated/amortised using the straight-line method over their estimated useful lives.

Assets are depreciated or amortised from the date of acquisition or, in respect of internally constructed assets, from the time an asset is completed and held ready for use.

Depreciation rates and methods are reviewed annually for appropriateness. When changes are made, adjustments are reflected prospectively in current and future periods only. Depreciation and amortisation is expensed.

The depreciation useful lives used for each class of asset are as follows:

Building, plant and equipment	June 2012	June 2011
Building and improvements	8 to 60 years	8 to 60 years
Plant and equipment	1 to 99 years	1 to 99 years
Intangibles	1 to 2 years	1 to 2 years

Impairment of assets

The carrying values of plant and equipment are assessed for impairment at each reporting date, with recoverable amounts being estimated when events or changes in circumstances indicate that the carrying value may be impaired.

The recoverable amount of plant and equipment is the depreciated replacement cost.

Depreciated replacement cost is defined as the current replacement cost of an asset less, where applicable, accumulated depreciation calculated on the basis of such cost to reflect the already consumed or expired future economic benefits of the asset.

An impairment exists when the carrying value of an asset exceeds its estimated recoverable amount. The asset is then written down to its recoverable amount.

For property, plant and equipment, impairment losses are recognised in the statement of comprehensive income.

Derecognition and disposal

An item of property, plant and equipment is derecognised upon disposal or when no further future economic benefits are expected from its use or disposal.

Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in the statement of comprehensive income in the year in which the asset is derecognised.

Notes to the Financial Statements**Indigenous Essential Services Pty Limited for the year ended 30 June 2012****(k) Intangible assets**

All intangible assets are acquired separately and are carried at cost less accumulated amortisation and accumulated impairment losses. Assets are amortised from the date of acquisition or from the time the asset is held ready for use. Amortisation rates and methods are reviewed annually for appropriateness. When changes are made, adjustments are reflected prospectively in current and future periods only.

The Company doesn't have internally-generated intangible assets.

Purchased software

All purchased software items have limited useful lives and are amortised using the straight-line method over their estimated useful lives. Subsequent expenditure is capitalised only when it increases the future economic benefits embodied in the specific asset to which it relates.

(l) Payables

Trade payables and other payables are carried at amortised cost and represent liabilities for goods and services provided to the Company prior to the end of the financial year that are unpaid and arise when the Company becomes obligated to make future payments in respect of the purchase of these goods and services. Trade accounts payable are normally settled within 30 days.

(m) Financial Instruments

Financial instruments held by the Company consist of cash, trade and other receivables classified as 'loans and receivables' and payables classified as other financial liabilities measured and recognised in line with AASB 139 '*Financial Instruments: Recognition and Measurement*'. Interest revenue recognised is solely incurred by cash held.

(n) Leased Assets

The determination of whether an arrangement is or contains a lease is based on the substance of the arrangement and requires an assessment of whether the fulfilment of the arrangement is dependent on the use of a specific asset or assets and the arrangement conveys a right to use the asset.

Operating leases

Operating lease payments are recognised as an expense in profit or loss on a straight-line basis over the lease term. Lease incentives are recognised in profit or loss as an integral part of the total lease expense.

Notes to the Financial Statements

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

	2012	2011
	\$	\$
3 Revenue and expenses		
<i>Revenue and expenses from continuing operations</i>		
(a) Sale of goods		
Electricity	23,064,554	22,576,335
Water	3,132,776	1,989,454
	<u>26,197,330</u>	<u>24,565,789</u>
(b) Rendering of services		
Recurrent grant	55,965,150	52,281,785
Capital grant	38,274,335	32,392,813
Services Rendered	2,071,133	1,164,197
	<u>96,310,618</u>	<u>85,838,795</u>
(c) Other income		
Community Service Obligations	-	2,522
Capital contributions and recoverable works	285,374	2,814,530
Net profit/(loss) on disposal of property, plant and equipment	(78,193)	(188,145)
Other Income	397,893	252,535
	<u>605,074</u>	<u>2,881,442</u>
(d) Other expenses		
Repairs and maintenance	16,063,062	13,610,561
Direct personnel costs	14,145,302	12,403,451
Agents - Community Contract Fees	7,699,904	7,900,311
Other	12,489,554	13,894,996
	<u>50,397,822</u>	<u>47,809,319</u>

Notes to the Financial Statements

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

	2012 \$	2011 \$
4 Cash and cash equivalents		
(a) Reconciliation of cash		
Cash at the end of the financial year as shown in the statements of cash flows is reconciled to the related items in the balance sheet as follows:		
Cash at bank	55,266,383	62,520,946
The weighted average interest rate on cash assets at 2012 is 4.08% (2011 : 4.42%)		
(b) Reconciliation of net surplus to net cash flows from operations		
Net Surplus	25,908,420	19,998,338
<i>Adjustments for:</i>		
Depreciation	13,455,146	16,167,825
Net (profit)/loss on disposal of property, plant and equipment	78,193	188,145
<i>Changes in assets and liabilities</i>		
(Increase)/decrease in inventories	(908,406)	(1,171,198)
(Increase)/decrease in trade and other receivables	(6,564,905)	(782,772)
(Increase)/decrease in prepayments	(11,674)	-
(Decrease)/increase in trade and other payables	(691,837)	25,788,180
Net cash flows from operating activities	31,264,937	60,188,518
5 Trade and other receivables		
Current		
Amounts due from controlling entity	-	-
Interest receivable	157,152	119,626
Other debtors	8,147,425	1,620,047
	8,304,577	1,739,673
<i>Ageing of trade and other receivables:</i>		
0-30 days	8,281,738	1,738,273
30 - 60 days	5,390	-
60 - 90 days	-	1,400
90 + days	17,449	-
	8,304,577	1,739,673
Receivables at 30 June 2012 are non-interest bearing.		
6 Inventories		
Materials and stores	-	13,853
Distillate Stocks	6,799,437	5,877,178
	6,799,437	5,891,031

Notes to the Financial Statements
Indigenous Essential Services Pty Limited for the year ended 30 June 2012

7 Property, plant and equipment

June 2012	Land \$	Buildings \$	Plant and Equipment \$	Intangible Assets \$	Work in Progress \$	Total Property, Plant and Equipment \$
Cost						
Opening Balance	21,332	40,900,251	336,704,568	24,768	31,280,120	408,931,039
Transfer / Restructure	-	20,629	(35,411)	-	14,782	-
Additions	-	-	-	-	38,559,711	38,559,711
Transfer From WIP	-	3,177,023	33,993,002	84,660	(37,254,685)	-
Disposals	-	(172,637)	(3,134,634)	-	-	(3,307,271)
Closing Balance	21,332	43,925,266	367,527,525	109,428	32,599,928	444,183,479
Accumulated Depreciation						
Opening Balance	-	(24,069,918)	(180,065,362)	(24,768)	-	(204,160,048)
Transfer / Restructure	-	-	-	-	-	-
Depreciation	-	(1,149,249)	(12,291,308)	(14,589)	-	(13,455,146)
Disposals	-	172,193	3,016,677	-	-	3,188,870
Closing Balance	-	(25,046,974)	(189,339,993)	(39,357)	-	(214,426,324)
Written Down Value						
Opening Balance	21,332	16,830,333	156,639,206	-	31,280,120	204,770,991
Transfer / Restructure	-	20,629	(35,411)	-	14,782	-
Additions	-	-	-	-	38,559,711	38,559,711
Depreciation	-	(1,149,249)	(12,291,308)	(14,589)	-	(13,455,146)
Transfer From WIP	-	3,177,023	33,993,002	84,660	(37,254,685)	-
Disposals	-	(444)	(117,957)	-	-	(118,401)
Closing Balance	21,332	18,878,292	178,187,532	70,071	32,599,928	229,757,155

June 2011	Land \$	Buildings \$	Plant and Equipment \$	Intangible Assets \$	Work in Progress \$	Total Property, Plant and Equipment \$
Cost						
Opening Balance	21,332	40,568,941	316,925,542	-	17,246,580	374,762,395
Transfer / Restructure	-	(7,270)	17,718	-	(9,237)	1,211
Additions	-	-	-	-	34,552,618	34,552,618
Transfer From WIP	-	393,343	20,091,730	24,768	(20,509,841)	-
Disposals	-	(54,763)	(330,422)	-	-	(385,185)
Closing Balance	21,332	40,900,251	336,704,568	24,768	31,280,120	408,931,039
Accumulated Depreciation						
Opening Balance	-	(22,384,242)	(165,791,717)	-	-	(188,175,959)
Transfer / Restructure	-	404	(1,616)	-	-	(1,212)
Depreciation	-	(1,695,977)	(14,447,080)	(24,768)	-	(16,167,825)
Disposals	-	9,897	175,051	-	-	184,948
Closing Balance	-	(24,069,918)	(180,065,362)	(24,768)	-	(204,160,048)
Written Down Value						
Opening Balance	21,332	18,184,699	151,133,825	-	17,246,580	186,586,436
Transfer / Restructure	-	(6,866)	16,102	-	(9,237)	(1)
Additions	-	-	-	-	34,552,618	34,552,618
Depreciation	-	(1,695,977)	(14,447,080)	(24,768)	-	(16,167,825)
Transfer From WIP	-	393,343	20,091,730	24,768	(20,509,841)	-
Disposals	-	(44,866)	(155,371)	-	-	(200,237)
Closing Balance	21,332	16,830,333	156,639,206	-	31,280,120	204,770,991

Notes to the Financial Statements

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

	2012	2011
	\$	\$
8 Trade and other payables		
Payable to controlling entity	7,951,065	13,382,405
Other creditors and accruals	10,005,390	11,613,224
Unearned revenue	45,607,907	39,260,570
	<u>63,564,362</u>	<u>64,256,199</u>
<p>Trade and other payables are non-interest-bearing. The policy of the Company is to settle trade payables within 30 days. The Company has financial risk management policies in place to ensure that all payables are paid within the credit timeframe.</p>		
9 Contributed equity		
Issued and paid-up share capital		
10 (2011:10) ordinary shares of \$1 fully paid	10	10
	<u>10</u>	<u>10</u>
<p>Fully paid ordinary shares carry one vote per share and carry the right to dividends. The shares have no par value.</p>		
10 Retained earnings		
Retained earnings at beginning of year	210,666,432	190,668,094
Net surplus for the year	25,908,420	19,998,338
Retained earnings at end of the year	<u>236,574,852</u>	<u>210,666,432</u>
11 Commitments		
Capital expenditure commitments		
Contracted but not provided for and payable: within one year	<u>13,993,648</u>	<u>5,797,130</u>
12 Operating Lease Arrangements		
Payments recognised as an expense		
Minimum lease payments	<u>743,545</u>	<u>751,179</u>
	<u>743,545</u>	<u>751,179</u>

Notes to the Financial Statements

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

13 Financial instruments

(a) Financial risk management objectives and policies

The Company has various financial instruments such as trade receivables and trade payables. It is, and has been throughout the period under review, the Company's policy that no trading in financial instruments shall be undertaken. The main risks arising from the Company's financial instruments are liquidity risk and credit risk. The Board of Directors reviews and agrees policies for managing each of these risks and they are summarised below.

The Company's overall strategy remains unchanged from 2011.

(b) Market Risk

The Company provides electricity, water and sewerage services to remote Indigenous communities in the Northern Territory.

The Company receives grant funding from the Northern Territory Government to construct and maintain assets required to provide electricity, water and sewerage services to remote Indigenous communities in the Northern Territory. The Company is the only provider of these services to remote Indigenous communities in the Northern Territory.

The service contract between the Company and the Northern Territory Government expired on 30 June 2010. The contract has been extended for a period of three years from 01 July 2011 to 30 June 2013.

The following table sets out the source of the Company's income.

Source of Income	2012		2011	
	\$	%	\$	%
Grant funding	94,239,485	75%	84,674,598	74%
Electricity	23,064,554	18%	22,576,335	20%
Water	3,132,776	3%	1,989,454	2%
Services Rendered	2,071,133	2%	1,164,197	1%
Capital contributions and recoverable works	285,374	0%	2,814,530	2%
Other	2,396,500	2%	1,328,394	1%
Total Revenue	<u>125,189,822</u>	<u>100%</u>	<u>114,547,508</u>	<u>100%</u>

(c) Credit risk management

Credit risk represents the loss that would be recognised if counterparties failed to perform as contracted. The credit risk on receivables of the Company that has been recognised in the statement of financial position is the carrying amount net of any provision for doubtful debts.

The Company performs works on behalf of Northern Territory Government agencies and private companies on a recoverable works basis. Funding for general recoverable works is obtained upfront thereby reducing credit risk associated with these transactions.

(d) Liquidity risk management

The Company's objective is to provide continued and reliable services to remote Indigenous communities in the Northern Territory within the grant funding and sales revenue it receives. Each year the Company limits expenditure to the level of grant funding and sales revenue it receives for that year.

(e) Commodity price risk

The Company is exposed to changes in the price of distillate which is used to power electricity generators. Each year grant funding received from the Northern Territory Government is based on an operational budget that includes an estimated cost of distillate consumption. In the event the distillate price varies upwards and the Company does not have sufficient grant funds to continue operating, the Company can apply to the Northern Territory Government for additional grant funds.

Notes to the Financial Statements**Indigenous Essential Services Pty Limited for the year ended 30 June 2012****13 Financial Instruments (continued)****(f) Interest rate risk**

Interest revenue is incurred solely on the cash balance held by the Company throughout the year. No interest expenses are incurred by the Company. Therefore the Company's exposure to interest rate risk is immaterial.

(g) Fair values

Net fair values of financial assets and liabilities approximate carrying values.

(h) Capital risk management

The Company's objectives when managing capital are to safeguard the principal business activities as a not-for-profit entity to provide electricity, water and sewerage services to remote Indigenous communities in the Northern Territory.

The capital structure of the Company consists of mainly cash and cash equivalents and equity attributable to the equity holder of the Company, comprising issued capital and retained earnings as disclosed in notes 9 and 10 respectively.

Operating cash flows are used to maintain and expand the Company's assets.

The Company is not subject to any externally imposed capital requirements.

The Company overall strategy remains unchanged from prior years.

Notes to the Financial Statements

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

14 Related party information

The following table provides the total amount of transactions that were entered into with related parties for the relevant financial year (for information regarding outstanding balances at year end refer to note 8).

		Sales to related parties \$	Purchases from Related parties \$	Amounts owed by related parties \$	Amounts owed to related parties \$
Related party					
Power and Water Corporation	2012	216,153	17,662,401	-	7,951,065
	2011	-	20,567,888	-	13,382,405
Northern Territory Government	2012	94,524,860	778,611	62,488,340	45,045,079
	2011	87,489,128	771,904	1,735,137	38,846,771

- (i) The controlling entity of the Company is Power and Water Corporation, a government owned corporation pursuant to the *Government Owned Corporations Act 2001*. Power and Water Corporation is wholly owned by the Northern Territory Government.
- (ii) The Company purchases electricity, water and sewerage services from Power and Water Corporation's infrastructure for remote Indigenous communities that are able to be connected to this infrastructure rather than requiring stand alone infrastructure. In addition, the Company purchases labour, accounting, computing, human resources, secretarial services and utility services for its operations from Power and Water Corporation.
- (iii) The Company receives operational and capital grants from the Northern Territory Government enabling it to provide electricity, water and sewerage services to remote Indigenous communities. The Company also receives recoverable works funds for specific projects undertaken on behalf of the Northern Territory Government and unrelated third parties.

15 Economic dependency

The Company's revenue is derived from two main sources as follows:

	2012 %	2011 %
Revenue derived from the Northern Territory Government	75%	76%
Revenue from provision of utility services	25%	24%
	100%	100%

Notes to the Financial Statements

Indigenous Essential Services Pty Limited for the year ended 30 June 2012

16 Auditor's remuneration

	2012	2011
	\$	\$
Audit Services:		
Auditors of the Company - NT Auditor-General	29,316	22,766

17 Director and executive disclosures*Directors*

The names of each person holding the position of director within Indigenous Essential Services Pty Limited during the financial year are listed in the Directors' report.

Directors do not receive any compensation for their directorship. No director has entered into a material contract with the Company since the end of the previous financial year and there were no material contracts involving directors' interest subsisting at year-end.

Compensation of key management personnel

Indigenous Essential Services Pty Ltd has no employees.

18 Events after the reporting period

There has not arisen in the interval between the end of the financial year and the date of this report any item, transactions or event of a material or unusual nature likely, in the opinion of the directors of the Company, to affect significantly the operations of the Company, the results of those operations, or the state of affairs of the Company in future financial years.

Appendices

Water quality test results	59
Water and energy efficiency	74
Providing safe water	78
Effective sewerage services	80
Providing reliable power	82
ESO training and employment	84

Appendix

Water quality test results

Power and Water regularly tests drinking water to confirm it complies with the Australian Drinking Water Guidelines (ADWG). Frequency of testing is outlined in the Drinking Water Monitoring Program which is developed in consultation with the Department of Health (DoH) and approved by the Chief Health Officer.

Water samples are collected by Essential Services Operators (ESOs) from particular points in the water supply system in each location and sent to laboratories for analysis.

To ensure water samples reach the laboratory in time for testing, small planes are chartered to collect samples from communities and deliver them to testing laboratories in Darwin and Alice Springs.

More than 90 000 analyses are carried out each year to determine microbiological, physio-chemical, trace metal and radiological characteristics of water to confirm it is safe to drink.

Each year over 5 000 water samples are collected from Territory Growth Towns and remote communities for quality testing.



Following is an overview of drinking water quality in each of the Territory Growth Towns and remote communities. Additional information and explanation is provided on some key water quality characteristics relevant to these water supplies to assist interpretation of water quality results.

Further information can be obtained from the Australian Drinking Water Guidelines fact sheets: <http://www.nhmrc.gov.au/publications/synopses/eh19syn.htm>

HEALTH PARAMETERS

Health parameters are water quality characteristics that may present a risk if the consumer was exposed to concentrations above ADWG levels over a lifetime.

Arsenic in drinking water is recommended not to exceed 0.007 mg/L.

Arsenic can be introduced into ground and surface water naturally through dissolution of minerals and ores. These sources can make a significant contribution to the arsenic concentration in drinking water. Industrial effluent, atmospheric deposition (through the burning of fossil fuels and waste incineration), drainage from old gold mines or some types of sheep dip are also sources of arsenic.

In Australia, arsenic concentrations typically range from less than 0.005 mg/L to 0.015 mg/L. Studies into the consumption of drinking water containing arsenic above 0.3 mg/L over five to 25 years have shown effects on the skin, vascular system and nervous system, with the possibility of being carcinogenic.

Barium in drinking water is recommended to be less than 0.7 mg/L. A number of epidemiological studies have been carried out on the effects of barium in drinking water and cardiovascular disease. No adverse effects have been found with barium concentrations up to 7mg/L. In a study of a small number of volunteers, no adverse effects were observed after eight weeks exposure to drinking water with up to 10 mg/L of barium.

Escherichia coli (E. coli) is a bacterial coliform excreted from the intestines of warm-blooded animals including humans and is an indicator of recent faecal contamination.

If E. coli is detected in a drinking water supply, immediate action is taken in accordance with established protocols.

Fluoride is one of the most abundant elements in the Earth's crust. It naturally occurs in groundwater supplies and is present in most food and beverage products and toothpaste.

The concentration of natural fluoride in Territory groundwater supplies depends on the type of soil and rock water comes into contact with. Generally, surface water sources have low natural fluoride concentrations (around <0.1 to 0.5mg/L) and groundwater sources may have relatively high levels (ranging from 1-10 mg/L).

In the correct amounts, fluoride in drinking water helps build strong, healthy teeth that resist decay. The minimum fluoride for protection against dental caries is about 0.5mg/L, although about 1mg/L is optimal in temperate climates. At concentrations of 1.5 to 2mg/L, teeth may become mottled due to dental fluorosis.

The majority of communities in the Barkly and southern regions have fluoride levels between 0.5mg/L and 1.5mg/L with two communities very close to the guideline value and Ali Curung above the ADWG value of 1.5mg/L (Figure 1).

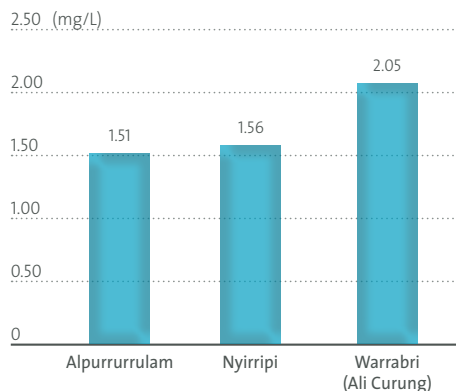


Figure 1
Natural fluoride levels above ADWG value of 1.5mg/L

Power and Water is installing a water treatment system at Ali Curung to reduce fluoride levels to below the guideline of 1.5 mg/L .

In contrast most water supplies in the northern and Katherine regions have naturally low fluoride levels due to the nature of shallow groundwater supplies and use of surface water supplies in some communities.

In 2011-12 fluoridation plants were installed in Wadeye and Wurrumiyanga in conjunction with works to upgrade disinfection systems. Fluoridation systems will be installed in 2012-13 at Angurugu, Maningrida and Umbakumba.

Nitrate in drinking water supplies in the Territory has been partially attributed to nitrogen fixing by native vegetation and cyanobacteria crusts on soils. Termite mounds appear to be a significant nitrate source, possibly due to the presence of nitrogen-fixing bacteria in many termite species and nitrogen-rich secretions used to build mounds.

The ADWG recommend that nitrate levels between 50 -100 mg/L are a health consideration for infants less than three months, although levels up to 100 mg/L can be safely consumed by adults.

Elevated levels of nitrate have been identified in Pmara Jutunta, Kintore and Ali Curung (Figure 2).

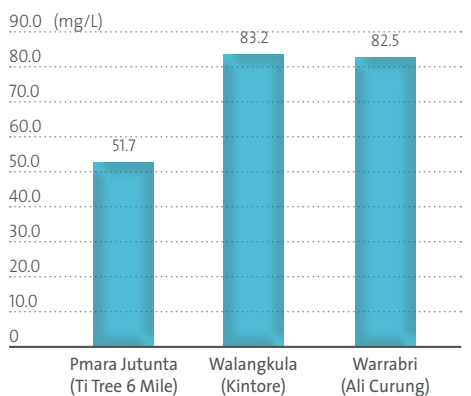


Figure 2
Nitrate levels between 50 - 100 mg/L

Power and Water is installing a water treatment system at Ali Curung and Kintore to reduce nitrate levels to below the guideline of 100 mg/L .

Regular monitoring is scheduled for Pmara Jutunta as nitrate levels are very close to the recommended guideline.

Appendix

Water quality test results

Uranium is widely distributed in geological formations. It can be found in groundwater aquifers surrounded by granite rocks and pegmatites as well as in sedimentary rocks like sandstones.

Uranium occurs as three naturally occurring isotopes and under appropriate conditions can become soluble and therefore present in a region's groundwater. The transport of uranium in groundwater varies widely according to aquifer conditions. Uranium may also be present in the environment as a result of mine tailings and use of phosphate pesticides.

AESTHETIC PARAMETERS

Aesthetic parameters are characteristics associated with the acceptability of water to the consumer in terms of appearance, taste and odour.

Hardness (as calcium carbonate): is primarily the amount of calcium and magnesium ions in water and is expressed as a calcium carbonate (CaCO_3) equivalent. High hardness usually requires more soap to achieve lather and may lead to excessive scaling in hot water pipes and fittings.

Soft water, or water low in total calcium and magnesium ions, may also cause corrosion in pipes although this will depend on other physical and chemical characteristics such as pH, alkalinity and dissolved oxygen. The ADWG recommend hardness levels below 200mg/L to minimise scaling in hot water systems.

The ADWG describes various degrees of hardness as:

- <60mg/L CaCO_3
Soft but possibly corrosive
- 60-200mg/L CaCO_3
Good quality
- 200-500mg/L CaCO_3
Increasing scaling problems
- >500mg/L CaCO_3
Severe scaling

Hard water or water with calcium carbonate levels above 500mg/L (Figure 3) may lead to excessive scaling of pipes and fittings, which can impact on infrastructure service life and indirectly impact health through impeding access to water.

Typically, Territory communities that rely on groundwater supplies near the coast in the Northern region are described as 'soft', as the water is drawn from relatively shallow aquifers and maintains naturally low pH and hardness levels. Water supplies in inland communities are often described as 'hard', as the water is stored for longer periods in deeper aquifers resulting in 'rich' water chemistry.

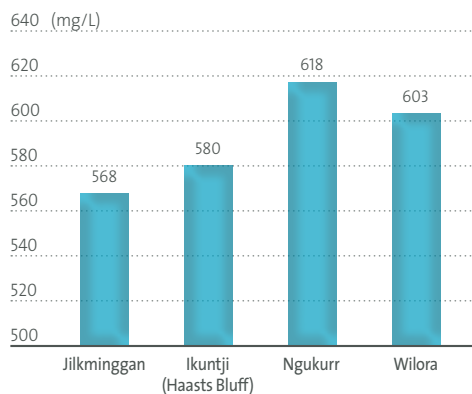


Figure 3
Communities with average hardness levels greater than 500mg/L in drinking water

Power and Water, the National Centre for Excellence in Desalination and the University of South Australia will trial a robust and cost-effective treatment technology that may be used to reduce water hardness levels and improve the quality of water provided.

Iron has a taste threshold of about 0.3mg/L in water and becomes objectionable above 3mg/L.

High iron concentrations give water a rust-brown appearance and can cause staining of laundry and plumbing fittings and blockages in irrigation systems. Growths of iron bacteria, which increase the concentration of iron, may cause taste and odour problems and lead to pipe restrictions, blockages and corrosion. The concentration of iron at the tap can also be influenced by factors such as rusting iron pipes.

There are a number of communities regularly monitored for iron levels above 0.3mg/L and a limited number above 1mg/L (Figure 4).

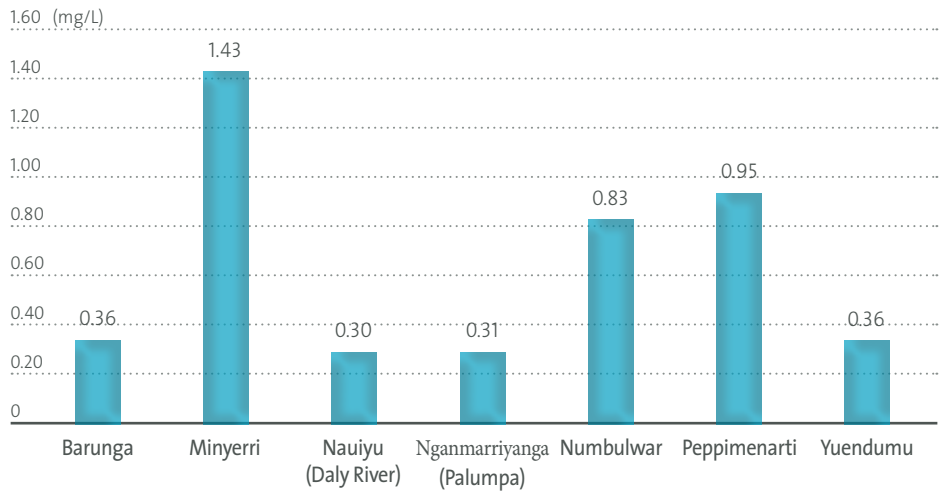


Figure 4
Communities with an average iron concentration greater than 0.3mg/L in the distribution system

Power and Water has identified alternative groundwater sources for Nauiyu (Daly River) that have reduced levels of iron and these will be developed in the next couple of years to improve water quality. Options to reduce iron levels in remaining communities with high levels are being investigated, including altering the operation of production bores to maximise use of those with reduced iron levels.

pH is a measure of the hydrogen ion concentration of water. It is measured on a logarithmic scale from 0 to 14. A pH of 7 is neutral, greater than 7 is alkaline and less than 7 is acidic. The ADWG recommends pH levels in drinking water should be between 6.5-8.5. Levels below 6.5 are likely to cause corrosion of pipes and fittings while levels above 8.5 can cause scaling particularly on hot water systems.

Typically, Territory communities that rely on groundwater supplies near the coast in the northern region are described as ‘corrosive’, as water is drawn from relatively shallow aquifers and has naturally low pH levels.



Sodium is an essential element for humans although there is currently no agreement on the minimum amount required.

Sodium ion is widespread in water due to the high solubility of sodium salts and the abundance of mineral deposits. The ADWG recommend action on levels above 180mg/L, when the taste becomes noticeable.

Turbidity is a measure of ‘discolouration’ of water caused by fine suspended matter such as clay or silt. The degree of “discolouration” depends on the amount, size and composition of the suspended matter.

At low levels, turbidity can only be measured by instruments, however at higher levels water has a ‘muddy’ or ‘milky’ appearance.

As a guide, “crystal-clear” water usually has a turbidity of less than 1 Nephelometric Turbidity Units (NTU), water with a turbidity of 5NTU appears slightly muddy or milky in a glass, while at >60NTU, it is not possible to see through the water.

Power and Water considers turbidity when managing community disinfection systems and adjusts disinfection doses to ensure adequate disinfection is achieved. Routine monitoring is also undertaken to check that disinfection systems are effective and safe water is being supplied.

Total dissolved solids (TDS) are small organic and inorganic particles dissolved in water that can affect how water tastes.

TDS comprises of sodium, potassium, calcium, magnesium, chloride, sulphate, bicarbonate,

carbonate, silica, organic matter, fluoride, iron, manganese, nitrate and phosphate.

Water with low TDS can taste flat, while water with TDS above 500mg/L could cause scaling in taps, pipes and hot water systems. Levels greater than 800mg/L significantly affect taste and may also cause moderate to severe scaling.

Based on taste, the ADWG recommends TDS levels below 500mg/L. Guidance is provided about palatability of drinking water according to TDS concentration:

<80mg/L

Excellent quality

80-500mg/L

Good quality

500-800mg/L

Fair quality

800-1000mg/L

Poor quality

>1000mg/L

May increase scaling, corrosion, taste.

More information is available from the Power and Water website:

http://www.powerwater.com.au/news_and_publications/publications/remote_communities

Specific results of water quality testing for each of the communities is provided in the tables on the following pages.



Water quality results

Northern Region

	Reported unit	ADWG 2004	Acacia Larakeyah	Angurugu	Belyuen	Galiwinku (Elcho Island)	Gapuwiyak (Lake Evella)	Gumbalanya (Oenpelli)	Gunyangara (Marrgar)
HEALTH CHARACTERISTICS									
E. coli detections ⁴	per year	0	0	0	0	1	0	1	0
E. coli performance ⁴	%	98	100	100	100	99	100	99	100
Antimony	mg/L	0.003	0.0002 ⁵	0.0002 ⁵	0.0002 ^{2,5}	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵
Arsenic	mg/L	0.007	0.0008	0.0005 ⁵	0.001 ^{2,5}	0.0005 ⁵	0.0005 ⁵	0.0005 ⁵	0.0005 ⁵
Barium	mg/L	0.7	0.05 ⁵	0.05 ⁵	0.05 ^{2,5}	0.05 ⁵	0.05 ⁵	0.05 ⁵	0.05 ⁵
Boron	mg/L	4	0.02 ⁵	0.02 ⁵	0.02 ^{2,5}	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.02 ^v
Cadmium	mg/L	0.002	0.0002 ⁵	0.0002 ⁵	0.0002 ^{2,5}	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵
Chromium	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
Fluoride	mg/L	1.5	0.1 ⁵	0.1 ⁵	0.16 ^{2,5}	0.1 ⁵	0.1 ⁵	0.1 ⁵	0.1 ⁵
Lead	mg/L	0.01	0.001 ⁵	0.0016 ⁵	0.0016 ^{2,5}	0.001 ⁵	0.0046 ⁵	0.0011 ⁵	0.0013 ⁵
Mercury	mg/L	0.001	0.0001 ⁵	0.0001 ⁵	0.0001 ^{2,5}	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵
Molybdenum	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
Nickel	mg/L	0.02	0.002 ⁵	0.002 ⁵	0.002 ^{2,5}	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵
Nitrate	mg/L	50	1.9 ⁵	1.23 ⁵	1 ^{2,5}	1.38 ⁵	2.51 ⁵	1.01 ⁵	1 ⁵
Annual Exposure to Radioactivity	mSv/yr	1	0.1 ⁵	0.09 ⁵	0.18 ⁵	0.12 ⁵	0.11 ⁵	0.11 ⁵	0.12 ⁵
Selenium	mg/L	0.1	0.001 ⁵	0.001 ⁵	0.001 ^{2,5}	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵
Silver	mg/L	0.1	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵
Uranium	mg/L	0.02	0.0004	0.00003	0.001 ²	0.00002 ⁵	0.00002	0.00003	0.00001 ⁵
AESTHETIC CHARACTERISTICS									
Aluminum	mg/L	0.2	0.05 ⁵	0.02 ⁵	0.03 ^{2,5}	0.02 ⁵	0.02 ⁵	0.14 ⁵	0.02 ⁵
Chloride	mg/L	250	7	10.6	8.12 ^{2,5}	11.6	13	7.76 ⁵	15.4
Copper	mg/L	2	0.01 ⁵	0.02 ⁵	0.07 ^{2,5}	0.02 ⁵	0.07 ⁵	0.03 ⁵	0.03 ⁵
Hardness	CaCO ₃ mg/L	200	219	9	16 ^{2,5}	22	7	7	9
Iodine	mg/L	0.15	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵
Iron	mg/L	0.3	0.038 ⁵	0.18 ⁵	0.13 ^{2,5}	0.06 ⁵	0.09 ⁵	0.25	0.04 ⁵
Manganese	mg/L	0.1	0.007 ⁵	0.005 ⁵	0.009 ²	0.006 ⁵	0.006 ⁵	0.008 ⁵	0.005 ⁵
pH	pH Units	6.5-8.5	8.0	6.91	6.32²	5.81	5.96	5.88	6.87
Sodium	mg/L	180	5	31	7 ²	8	8	4	8
Sulfate	mg/L	250	2	1	1 ²	1	0.31 ⁵	1	0.22 ⁵
Total Dissolved Solids	mg/L	500	238	101	70 ²	42.5	45.9	55	33
True Colour	CU	15	2.71 ⁵	17.8⁵	2.59 ^{2,5}	2.7 ⁵	3.43 ⁵	6.8 ⁵	1.83 ⁵
Turbidity	NTU	5	1.86	6.03	1.64 ²	0.39	0.9	3.31	0.72
Zinc	mg/L	3	0.01 ⁵	0.03 ⁵	0.03 ^{2,5}	0.01 ⁵	0.03 ⁵	0.02 ⁵	0.02 ⁵
OTHER CHARACTERISTICS									
Alkalinity	mg/L	#	219	60.9 ⁵	25.1 ²	20 ⁵	14.3 ⁵	13.5 ⁵	16 ⁵
Beryllium	mg/L	#	0.001 ⁵	0.001 ⁵	0.001 ²	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵
Bromine	mg/L	#	0.016	0.019	0.009 ²	0.019	0.017	0.022	0.022
Calcium	mg/L	#	43	2.67	5 ²	7	2	2	2.9
Conductivity	µS/cm	#	439	143	59 ²	57.3	57	34.7	58
Magnesium	mg/L	#	26.8	0.67	0.6 ²	0.96	0.7	0.59	0.5
Potassium	mg/L	#	1.46	0.15	3.42 ²	1.01	0.09 ⁵	0.2	0.18 ⁵
Silica	mg/L	#	20.6	11.3	34.3 ²	13.9	11.5	12	11.1
Tin	mg/L	#	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵

1 N/A Not Available

2 95th percentile reported

3 value indicates data from 2007-2012

4 value includes data from 2011-2012

5 one or more values in calculation were below detection limits. Result may be higher than actual value

Northern Region (cont.)

	Reported unit	ADWG 2004	Maningrida	Milikapiti (Snake Bay)	Milingimbi	Milyakburra (Bickerton Island)	Minjilang (Crocker Island)	Nauyju Nambiyu (Daly River)	Nganmarrinyanga (Palumpa)	Numbulwar
HEALTH CHARACTERISTICS										
E. coli detections ⁴	per year	0	0	0	0	0	0	0	1	0
E. coli performance ⁴	%	98	100	100	100	100	100	100	98	100
Antimony	mg/L	0.003	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ^{2,5}	0.0004 ^{2,5}	0.0002 ⁵	0.0002 ⁵
Arsenic	mg/L	0.007	0.0005 ⁵	0.0005 ⁵	0.0005 ⁵	0.0005 ⁵	0.0005 ^{2,5}	0.004 ²	0.0009 ⁵	0.001
Barium	mg/L	0.7	0.05 ⁵	0.05 ⁵	0.05	0.05 ⁵	0.05 ^{2,5}	0.05 ^{2,5}	0.19 ⁵	0.3
Boron	mg/L	4	0.02	0.02 ⁵	0.04	0.05	0.03 ^{2,5}	0.02 ^{2,5}	0.03 ⁵	0.04
Cadmium	mg/L	0.002	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ^{2,5}	0.0002 ^{2,5}	0.0002 ⁵	0.0002 ⁵
Chromium	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}	0.005 ^{2,5}	0.005 ⁵	0.005 ⁵
Fluoride	mg/L	1.5	0.1 ⁵	0.12 ⁵	0.1 ⁵	0.1 ⁵	0.1 ^{2,5}	0.4 ²	0.23 ⁵	0.14
Lead	mg/L	0.01	0.0025 ⁵	0.0015 ⁵	0.002 ⁵	0.004 ⁵	0.0014 ^{2,5}	0.0013 ⁵	0.0011 ⁵	0.001 ⁵
Mercury	mg/L	0.001	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ^{2,5}	0.0001 ^{2,5}	0.0001 ⁵	0.0001 ⁵
Molybdenum	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}	0.005 ^{2,5}	0.005 ⁵	0.005 ⁵
Nickel	mg/L	0.02	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.002 ^{2,5}	0.002 ^{2,5}	0.002 ⁵	0.002 ⁵
Nitrate	mg/L	50	1 ⁵	1 ⁵	4	1 ⁵	1 ^{2,5}	1.27 ^{2,5}	1.44 ⁵	1.08 ⁵
Annual Exposure to Radioactivity	mSv/yr	1	0.14 ⁵	0.12 ⁵	0.16	0.12 ⁵	0.13 ⁵	0.15 ⁵	0.16 ⁵	0.13 ⁵
Selenium	mg/L	0.1	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ^{2,5}	0.001 ^{2,5}	0.001 ⁵	0.001 ⁵
Silver	mg/L	0.1	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵
Uranium	mg/L	0.02	0.00005	0.00001 ⁵	0.0002	0.00003	0.0002 ²	0.0001 ²	0.00001 ⁵	0.0008
AESTHETIC CHARACTERISTICS										
Aluminum	mg/L	0.2	0.02 ⁵	0.03 ⁵	0.06	0.02 ⁵	0.09 ^{2,5}	0.1 ^{2,5}	0.02 ⁵	0.02 ⁵
Chloride	mg/L	250	9	12 ^{2,5}	79.7	64	17 ²	7.87 ^{2,5}	26	27
Copper	mg/L	2	0.01 ⁵	0.02 ⁵	0.03 ⁵	0.05 ⁵	0.02 ^{2,5}	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵
Hardness	CaCO ₃ mg/L	200	10.1	14 ²	42.4	32	11.1 ²	130 ²	66	194
Iodine	mg/L	0.15	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}	0.02 ^{2,5}	0.01 ⁵	0.01 ⁵
Iron	mg/L	0.3	0.08 ⁵	0.22 ^{2,5}	0.08 ⁵	0.08 ⁵	0.06 ^{2,5}	0.3 ^{2,5}	0.31 ⁵	0.83 ⁵
Manganese	mg/L	0.1	0.005 ⁵	0.005 ⁵	0.014 ⁵	0.022 ⁵	0.005 ^{2,5}	0.36 ²	0.1 ⁵	0.19
pH	pH Units	6.5-8.5	6.05	5.74 ²	5.29	5.63	5.29 ²	7.7 ²	7.36	8.15
Sodium	mg/L	180	5	9 ²	44	38	12 ²	18 ²	36	19
Sulfate	mg/L	250	1	1 ²	9	4	4 ²	5 ²	11	32
Total Dissolved Solids	mg/L	500	39	48 ²	179	140	55 ²	194 ²	188	279
True Colour	CU	15	2.36 ⁵	2.86 ^{2,5}	2.81 ⁵	2.93 ⁵	2.25 ^{2,5}	4.73 ^{2,5}	3.75 ⁵	6.4
Turbidity	NTU	5	1.42	2.7 ²	0.69	0.74	1.38 ²	11 ²	1.99	10.3
Zinc	mg/L	3	0.05 ⁵	0.04 ⁵	0.08	0.04	0.11 ²	0.02 ^{2,5}	0.01 ⁵	0.02 ⁵
OTHER CHARACTERISTICS										
Alkalinity	mg/L	#	14.9 ⁵	20.6 ^{2,5}	15.2 ⁵	16.3 ⁵	15.3 ^{2,5}	168 ²	102 ⁵	182
Beryllium	mg/L	#	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ^{2,5}	0.001 ^{2,5}	0.001 ⁵	0.001 ⁵
Bromine	mg/L	#	0.024	0.022	0.2	0.1	0.053	0.02 ²	0.047	0.074
Calcium	mg/L	#	3	5	9	9	3 ²	29 ²	18.6	61.7
Conductivity	µS/cm	#	42	59 ²	326	254	83 ²	336 ²	309	484
Magnesium	mg/L	#	0.71	0.58 ⁵	5.02	2.53	0.71 ²	14.3 ²	4.75	10.9
Potassium	mg/L	#	1.09	0.53 ^{2,5}	0.68	0.31	0.14 ²	0.96 ²	5.29 ⁵	2.51
Silica	mg/L	#	13.9	12.3 ²	18.3	16.1	12.9 ²	37.9 ²	36.9	17.1
Tin	mg/L	#	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵

1 N/A Not Available

2 95th percentile reported

3 value indicates data from 2007-2012

4 value includes data from 2011-2012

5 one or more values in calculation were below detection limits. Result may be higher than actual value

Water quality results

Northern Region (cont.)

	Reported unit	ADWG 2004	Peppimnarti	Pirlangimpi (Garden Point)	Ramingining	Umbakumba	Wadeye	Warruwi	Wurruiyanga (Ngutu)	Yirrkala
HEALTH CHARACTERISTICS										
E. coli detections ⁴	per year	0	0	0	0	0	0	0	0	0
E. coli performance ⁴	%	98	100	100	100	100	100	100	100	100
Antimony	mg/L	0.003	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵
Arsenic	mg/L	0.007	0.0006 ⁵	0.0005 ⁵	0.0006 ⁵	0.0005 ⁵	0.0005 ⁵	0.0006 ⁵	0.0005 ⁵	0.0005 ⁵
Barium	mg/L	0.7	0.08	0.06 ⁵	0.05 ⁵	0.05 ⁵	0.05 ⁵	0.05 ⁵	0.05 ⁵	0.05 ⁵
Boron	mg/L	4	0.04	0.02 ⁵	0.02 ⁵	0.02	0.02 ⁵	0.02	0.02 ⁵	0.02 ⁵
Cadmium	mg/L	0.002	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵
Chromium	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
Fluoride	mg/L	1.5	0.5	0.1 ⁵	0.1 ⁵	0.1 ⁵	0.1 ⁵	0.1 ⁵	0.1 ⁵	0.1 ⁵
Lead	mg/L	0.01	0.0013 ⁵	0.0017 ⁵	0.0026 ⁵	0.0038	0.001 ⁵	0.0015 ⁵	0.0014 ⁵	0.0017 ⁵
Mercury	mg/L	0.001	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵
Molybdenum	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
Nickel	mg/L	0.02	0.003 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.003 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵
Nitrate	mg/L	50	1.21 ⁵	1 ⁵	1 ⁵	1 ⁵	1 ⁵	1 ⁵	1 ⁵	1 ⁵
Annual Exposure to Radioactivity	mSv/yr	1	0.13 ⁵	0.1 ⁵	0.09 ⁵	0.13 ⁵	0.1 ⁵	0.11 ⁵	0.13 ⁵	0.12 ⁵
Selenium	mg/L	0.1	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵
Silver	mg/L	0.1	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵
Uranium	mg/L	0.02	0.00004 ⁵	0.00001 ⁵	0.00002	0.00001	0.0002	0.00006	0.00001 ⁵	0.0001
AESTHETIC CHARACTERISTICS										
Aluminum	mg/L	0.2	0.02 ⁵	0.07	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.06	0.02 ⁵	0.18 ⁵
Chloride	mg/L	250	14	10	10.1 ⁵	35	12.3 ⁵	41	8.58	15
Copper	mg/L	2	0.01 ⁵	0.01 ⁵	0.02 ⁵	0.06 ⁵	0.01 ⁵	0.03 ⁵	0.02 ⁵	0.02 ⁵
Hardness	CaCO ₃ mg/L	200	64.2	5.04 ⁵	15	18.2	17	31	16	6
Iodine	mg/L	0.15	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵
Iron	mg/L	0.3	0.95	0.24 ⁵	0.05 ⁵	0.04 ⁵	0.08 ⁵	0.09 ⁵	0.04 ⁵	0.17 ⁵
Manganese	mg/L	0.1	0.15	0.005 ⁵	0.005 ⁵	0.008 ⁵	0.011 ⁵	0.006 ⁵	0.006 ⁵	0.005 ⁵
pH	pH Units	6.5-8.5	7.24	6.04	5.68	5.71	5.76	5.37	6.08	5.72
Sodium	mg/L	180	16	7	6	21	6	21	5	7
Sulfate	mg/L	250	3	0.4	0.28	5	0.61	7	0.4	2
Total Dissolved Solids	mg/L	500	117	26	52	90	37	96	29	32
True Colour	CU	15	3.76 ⁵	7.56	2.02 ⁵	2.25 ⁵	2.75 ⁵	2.34 ⁵	2.26 ⁵	2.5
Turbidity	NTU	5	8.91	3.44	0.81	1.13	1.28	1.01	1.47	29.3
Zinc	mg/L	3	0.03 ⁵	0.03 ⁵	0.02 ⁵	0.04 ⁵	0.02 ⁵	0.04 ⁵	0.04 ⁵	0.03 ⁵
OTHER CHARACTERISTICS										
Alkalinity	mg/L	#	86	11.7 ⁵	17.4 ⁵	17.4 ⁵	17.3 ⁵	18.5 ⁵	19.6 ⁵	17.2 ⁵
Beryllium	mg/L	#	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵
Bromine	mg/L	#	0.028	0.011	0.008	0.072	0.015	0.082	0.012	0.021
Calcium	mg/L	#	17	2	5	3	6	7	5.8 ⁵	1
Conductivity	µS/cm	#	212	36	47.2	146	45.8	170	39.1	56.7
Magnesium	mg/L	#	5.5	0.19	0.89	2.66	0.6	3.6	0.41	0.56
Potassium	mg/L	#	5.93	0.07 ⁵	0.27	0.64	0.31	0.16 ⁵	0.05 ⁵	0.43
Silica	mg/L	#	26.3	10.2	15	9.22	15.4	10.7	13.4	12.3
Tin	mg/L	#	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵

1 N/A Not Available

2 95th percentile reported

3 value indicates data from 2007-2012

4 value includes data from 2011-2012

5 one or more values in calculation were below detection limits. Result may be higher than actual value

Katherine Region

	Reported unit	ADWG 2004	Amanbidji (Kildurk)	Barunga	Beswick	Binjari	Bumbidee (Pigeon Hole)	Dagaragu	Gudabijin (Bulla)	Gulin Gulin (Bulman)
HEALTH CHARACTERISTICS										
E. coli detections ⁴	per year	0	0	0	0	0	0	0	0	0
E. coli performance ⁴	%	98	100	100	100	100	100	100	100	100
Antimony	mg/L	0.003	0.0004 ⁵	0.0011 ⁵	0.0067	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵
Arsenic	mg/L	0.007	0.0015 ⁵	0.001 ⁵	0.007	0.0015 ⁵	0.0005 ⁵	0.001	0.0008 ⁵	0.0005 ⁵
Barium	mg/L	0.7	0.18	0.07 ⁵	0.15	0.18 ⁵	0.05 ⁵	0.075	3.78	0.05 ⁵
Boron	mg/L	4	0.51	0.02 ⁵	0.02 ⁵	0.02	0.08	0.09	0.1	0.02
Cadmium	mg/L	0.002	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵
Chromium	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
Fluoride	mg/L	1.5	0.29	0.1 ⁵	0.11	0.42	0.3	0.3	0.59	0.1 ⁵
Lead	mg/L	0.01	0.0011 ⁵	0.0013 ⁵	0.003 ⁵	0.0012 ⁵	0.001 ⁵	0.0013 ⁵	0.0011 ⁵	0.001 ⁵
Mercury	mg/L	0.001	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵
Molybdenum	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
Nickel	mg/L	0.02	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵
Nitrate	mg/L	50	1.29 ⁵	1 ⁵	2.04 ⁵	1.19 ⁵	19	2.8	1.4 ⁵	1 ⁵
Annual Exposure to Radioactivity	mSv/yr	1	0.18 ⁵	0.11 ⁵	0.1 ⁵	0.87	0.12 ⁵	0.16 ⁵	0.17 ⁵	0.12 ⁵
Selenium	mg/L	0.1	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵
Silver	mg/L	0.1	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵
Uranium	mg/L	0.02	0.0009	0.00007	0.0002	0.001	0.002	0.002	0.0002	0.0003
AESTHETIC CHARACTERISTICS										
Aluminum	mg/L	0.2	0.03 ⁵	0.07 ⁵	0.02 ⁵	0.03 ⁵	0.02 ⁵	0.02 ⁵	0.04 ⁵	0.02 ⁵
Chloride	mg/L	250	132	7.83	6.64 ⁵	12.6	25.3	23	40	11
Copper	mg/L	2	0.01 ⁵	0.03 ⁵	0.14 ⁵	0.01 ⁵	0.05 ⁵	0.02 ⁵	0.01 ⁵	0.01 ⁵
Hardness	CaCO ₃ mg/L	200	372	118	296	290	312	251	242	321
Iodine	mg/L	0.15	0.02 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.02 ⁵	0.02 ⁵	0.01 ⁵	0.01 ⁵
Iron	mg/L	0.3	0.17 ⁵	0.36	0.04 ⁵	0.05 ⁵	0.05 ⁵	0.04 ⁵	0.15 ⁵	0.04 ⁵
Manganese	mg/L	0.1	0.014 ⁵	0.02 ⁵	0.014 ⁵	0.007 ⁵	0.005 ⁵	0.021 ⁵	0.054 ⁵	0.005 ⁵
pH	pH Units	6.5-8.5	7.82	6.44	7.45	7.57	7.37	7.9	8.33	7.72
Sodium	mg/L	180	180	6	6	10	27	29	25	8
Sulfate	mg/L	250	158	1	2	6	7	8	2	1
Total Dissolved Solids	mg/L	500	883	151	314	334	430	320	297	338
True Colour	CU	15	2.69 ⁵	9.44	2.36 ⁵	2.7 ⁵	2 ⁵	2.2 ⁵	3.64 ⁵	2.8 ⁵
Turbidity	NTU	5	1.85	2.19	0.72 ⁵	0.95 ⁵	1.4	1	2.1	0.23
Zinc	mg/L	3	0.02 ⁵	0.4 ⁵	0.3	0.04 ⁵	0.02 ⁵	0.03 ⁵	0.02 ⁵	0.02 ⁵
OTHER CHARACTERISTICS										
Alkalinity	mg/L	#	470	121 ⁵	318	314	352	295	262	347
Beryllium	mg/L	#	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵
Bromine	mg/L	#	0.18	0.022	0.016	0.057	0.057	0.072	0.096	0.021
Calcium	mg/L	#	58	24	57	64.2	69	48.3	34	62
Conductivity	µS/cm	#	1486	235	590	602	713	611	594	619
Magnesium	mg/L	#	55.5	14.3	37.1	32	33.9	31.7	37.9	40.2
Potassium	mg/L	#	4.08	1.14	1.97	4.67	2.05	4.1	4.37	2.55
Silica	mg/L	#	33.7	21.1	22.9	27.7	56	25.3	18.9	24.7
Tin	mg/L	#	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵

1 N/A Not Available

2 95th percentile reported

3 value indicates data from 2007-2012

4 value includes data from 2011-2012

5 one or more values in calculation were below detection limits. Result may be higher than actual value

Water quality results

Katherine Region (cont.)

	Reported unit	ADWG 2004	Jilkmingan (Duck Creek)	Jodetluk (Gorge Camp)	Kalkarindji (Wave Hill)	Kybrook Farm	Lajamanu	Manyalaluk (Eva Valley)	Minyerri
HEALTH CHARACTERISTICS									
E. coli detections ⁴	per year	0	2	0	0	0	0	0	0
E. coli performance ⁴	%	98	95	100	100	100	100	100	100
Antimony	mg/L	0.003	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0003 ⁵	0.0003 ⁵	0.0002 ⁵	0.0002 ^{2,5}
Arsenic	mg/L	0.007	0.0008 ⁵	0.0005 ⁵	0.001	0.008	0.0006 ⁵	0.0005 ⁵	0.004 ²
Barium	mg/L	0.7	0.05 ⁵	0.05 ⁵	0.12	0.05 ⁵	0.11	0.05 ⁵	0.36 ²
Boron	mg/L	4	0.5	0.02 ⁵	0.01	0.02 ⁵	0.20	0.02 ⁵	0.18 ²
Cadmium	mg/L	0.002	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002	0.0002 ⁵	0.0002 ^{2,5}
Chromium	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}
Fluoride	mg/L	1.5	0.51	0.1 ⁵	0.3	0.61 ⁵	0.33	0.1 ⁵	0.3 ²
Lead	mg/L	0.01	0.0024 ⁵	0.0012 ⁵	0.001 ⁵	0.0014 ⁵	0.001 ⁵	0.0026 ⁵	0.0012 ^{2,5}
Mercury	mg/L	0.001	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ^{2,5}
Molybdenum	mg/L	0.05	0.005 ⁵	0.006 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}
Nickel	mg/L	0.02	0.004 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.004 ⁵	0.002 ^{2,5}
Nitrate	mg/L	50	1.3 ⁵	15	4.57	1 ⁵	7.9	1 ⁵	1 ^{2,5}
Annual Exposure to Radioactivity	mSv/yr	1	0.52	N/A	0.21 ⁵	0.12 ⁵	0.17 ⁵	0.13 ⁵	0.13 ⁵
Selenium	mg/L	0.1	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.002 ⁵	0.001 ⁵	0.001 ^{2,5}
Silver	mg/L	0.1	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}
Uranium	mg/L	0.02	0.011	0.00001 ⁵	0.002	0.0003	0.002	0.00007	0.00001 ^{2,5}
AESTHETIC CHARACTERISTICS									
Aluminum	mg/L	0.2	0.08 ⁵	0.02 ⁵	0.02 ⁵	0.04 ⁵	0.02 ⁵	0.02	0.02 ^{2,5}
Chloride	mg/L	250	283	10 ⁵	29.9	10 ^{2,5}	140 ²	7.54	16 ^{2,5}
Copper	mg/L	2	0.03 ⁵	0.01 ⁵	0.01 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.02 ^{2,5}
Hardness	CaCO ₃ mg/L	200	568	9	257	135 ⁵	289 ²	14	102 ²
Iodine	mg/L	0.15	0.19	0.01 ⁵	0.02 ⁵	0.01 ⁵	0.16	0.01 ⁵	0.01 ^{2,5}
Iron	mg/L	0.3	0.19 ⁵	0.06 ⁵	0.04 ⁵	0.09 ^{2,5}	0.06 ^{2,5}	0.17 ⁵	1.43 ²
Manganese	mg/L	0.1	0.18	0.006 ⁵	0.005 ⁵	0.05 ⁵	0.005 ⁵	0.005 ⁵	0.3 ²
pH	pH Units	6.5-8.5	7.48	7.57	7.84	7.13 ²	7.64 ²	5.18	7.33 ²
Sodium	mg/L	180	221	8	35	40 ²	90 ²	4	24 ²
Sulfate	mg/L	250	214	0.2	12	3 ²	58 ²	0.3	11 ²
Total Dissolved Solids	mg/L	500	1326	43	351	249 ²	635 ²	46	180 ²
True Colour	CU	15	3.38 ⁵	3.28 ⁵	1.75 ⁵	3.75 ^{2,5}	2.03 ^{2,5}	2 ⁵	4.35 ^{2,5}
Turbidity	NTU	5	2.36	0.88	0.8	1.69 ²	0.98 ^{2,5}	0.56	34.3 ²
Zinc	mg/L	3	0.04 ⁵	0.2	0.01 ⁵	0.06 ⁵	0.02 ⁵	0.06	0.14 ^{2,5}
OTHER CHARACTERISTICS									
Alkalinity	mg/L	#	525	22.6 ⁵	300	208 ²	261 ²	18.3 ⁵	1228 ²
Beryllium	mg/L	#	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ^{2,5}
Bromine	mg/L	#	1.4	0.011	0.1	0.026	0.62	0.023	0.039 ²
Calcium	mg/L	#	86.2	1.83	52	23 ²	43.8 ²	5	22 ²
Conductivity	µS/cm	#	2165	58	664	422 ²	1034 ²	30.1	316 ²
Magnesium	mg/L	#	86.2	1.01	31.1	19.2	43.4	0.68	11.6 ²
Potassium	mg/L	#	26.1	0.59	4.61	1.4 ²	8.51 ²	0.45	5.08 ²
Silica	mg/L	#	59.8	14.5	24.3	40.8 ²	99.7 ²	23.4	31.3 ²
Tin	mg/L	#	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}

1 N/A Not Available

2 95th percentile reported

3 value indicates data from 2007-2012

4 value includes data from 2011-2012

5 one or more values in calculation were below detection limits. Result may be higher than actual value

Katherine Region (cont.)			Barkly Region						
	Reported unit	ADWG 2004	Mungoobada (Robinson River)	Ngukurr	Rittarangu	Weemol	Yarralin	Alpururulam (Lake Nash)	Imangara (Murray Downs)
HEALTH CHARACTERISTICS									
E. coli detections ⁴	per year	0	0	0	0	1	2	0	0
E. coli performance ⁴	%	98	100	100	100	98	96	100	100
Antimony	mg/L	0.003	0.0003 ^{2,5}	0.0003 ^{2,5}	0.0002 ⁵	0.0002 ⁵	0.0002 ^{2,5}	0.0002 ⁵	0.0002 ⁵
Arsenic	mg/L	0.007	0.0005 ^{2,5}	0.0006 ^{2,5}	0.0005 ⁵	0.0005 ⁵	0.003 ²	0.0015	0.001
Barium	mg/L	0.7	1.18 ²	0.61 ²	0.17	0.05 ⁵	0.98 ²	0.1	0.49
Boron	mg/L	4	0.1 ²	0.05 ^{2,5}	0.04 ⁵	0.03	0.09 ²	0.25	0.25
Cadmium	mg/L	0.002	0.0002 ^{2,5}	0.0002 ^{2,5}	0.0002 ⁵	0.0002 ⁵	0.0002 ^{2,5}	0.0002 ⁵	0.0002 ⁵
Chromium	mg/L	0.05	0.005 ^{2,5}	0.005 ^{2,5}	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}	0.005 ⁵	0.005 ⁵
Fluoride	mg/L	1.5	0.9 ²	0.22 ²	0.1 ⁵	0.12	0.1 ²	1.5	0.72
Lead	mg/L	0.01	0.0015 ^{2,5}	0.0029 ^{2,5}	0.0013 ⁵	0.001 ⁵	0.0014 ^{2,5}	0.001 ⁵	0.001 ⁵
Mercury	mg/L	0.001	0.0002 ^{2,5}	0.0001 ^{2,5}	0.0001 ⁵	0.0001 ⁵	0.0001 ^{2,5}	0.0001 ⁵	0.0001 ⁵
Molybdenum	mg/L	0.05	0.005 ^{2,5}	0.005 ^{2,5}	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}	0.005 ⁵	0.005 ⁵
Nickel	mg/L	0.02	0.002 ^{2,5}	0.002 ^{2,5}	0.002 ⁵	0.002 ⁵	0.002 ^{2,5}	0.002 ⁵	0.002 ⁵
Nitrate	mg/L	50	4 ^{2,5}	1.44 ^{2,5}	2.93 ⁵	1 ⁵	3.19 ^{2,5}	2.66	9.09
Annual Exposure to Radioactivity	mSv/yr	1	0.13 ⁵	0.15 ⁵	0.12 ⁵	0.12 ⁵	0.14 ⁵	0.29 ⁵	0.71
Selenium	mg/L	0.1	0.001 ^{2,5}	0.002 ^{2,5}	0.001 ⁵	0.001 ⁵	0.001 ^{2,5}	0.002 ⁵	0.001 ⁵
Silver	mg/L	0.1	0.01 ^{2,5}	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵
Uranium	mg/L	0.02	0.003 ²	0.001 ²	0.0008	0.0003	0.001 ²	0.01	0.012
AESTHETIC CHARACTERISTICS									
Aluminum	mg/L	0.2	0.03 ^{2,5}	0.1 ^{2,5}	0.02 ⁵	0.02 ⁵	0.02 ^{2,5}	0.02 ⁵	0.02 ⁵
Chloride	mg/L	250	34	370 ²	60	11	31	192	21
Copper	mg/L	2	0.01 ^{2,5}	0.04 ^{2,5}	0.02 ⁵	0.02 ⁵	0.01 ^{2,5}	0.07 ⁵	0.01 ⁵
Hardness	CaCO ₃ mg/L	200	495	618 ²	287	352	378	461	183
Iodine	mg/L	0.15	0.03 ^{2,5}	0.03 ^{2,5}	0.01 ⁵	0.01 ⁵	0.04 ^{2,5}	0.18	0.08
Iron	mg/L	0.3	0.07 ⁵	0.26 ^{2,5}	0.08 ^v	0.04 ⁵	0.25 ⁵	0.02 ⁵	0.04 ⁵
Manganese	mg/L	0.1	0.013 ^{2,5}	0.011 ^{2,5}	0.005 ⁵	0.005 ⁵	0.066 ²	0.005 ⁵	0.005 ⁵
pH	pH Units	6.5-8.5	7.47	7.58 ²	7.56	7.45	7.5	7.67	7.9
Sodium	mg/L	180	20	94 ²	26	10	30	145	31
Sulfate	mg/L	250	6	36 ²	3	0.3	7	89	11
Total Dissolved Solids	mg/L	500	552	927 ²	367	386	489	924	426
True Colour	CU	15	2.75 ⁵	3.69 ^{2,5}	1.9 ⁵	3.25 ⁵	3.99 ⁵	2.59 ⁵	1.67 ⁵
Turbidity	NTU	5	1.09	3.36 ²	0.86	0.23	3.44	0.9 ⁵	0.27
Zinc	mg/L	3	0.06 ^{2,5}	0.07 ^{2,5}	0.06 ⁵	0.02	0.1 ²	0.02 ⁵	0.01 ⁵
OTHER CHARACTERISTICS									
Alkalinity	mg/L	#	536	324 ²	281	385	438	482	334
Beryllium	mg/L	#	0.001 ^{2,5}	0.001 ^{2,5}	0.001 ⁵	0.001 ⁵	0.001 ^{2,5}	0.001 ⁵	0.001 ⁵
Bromine	mg/L	#	0.2 ²	1.14 ²	0.2	0.025	0.2 ²	0.8	0.098
Calcium	mg/L	#	42.7 ²	108 ²	53.5	62	69 ²	60	39
Conductivity	µS/cm	#	1017	1780 ²	698	686	867	1556	719
Magnesium	mg/L	#	94.4 ²	85.6 ²	37.3	47.9	50.2 ²	76	37.8
Potassium	mg/L	#	3.8	6.59 ²	2.9	2.81	3.1	7.42	30
Silica	mg/L	#	34	24.8 ²	23.3	34.2	41.8	67.4	80.3
Tin	mg/L	#	0.01 ^{2,5}	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵

1 N/A Not Available

2 95th percentile reported

3 value indicates data from 2007-2012

4 value includes data from 2011-2012

5 one or more values in calculation were below detection limits. Result may be higher than actual value

Water quality results

Barkly Region (cont.)

	Reported unit	ADWG 2004	Nturiya ⁴	Owaitilla (Canteen Creek) ⁴	Tara	Warrabri (Ali Curung)	Willowra	Wilora (Stirling) ⁴	Wutunugurra (Epenarra) ⁴
HEALTH CHARACTERISTICS									
E. coli detections ⁴	per year	0	0	0	0	0	0	1	0
E. coli performance ⁴	%	98	100	100	100	100	100	98	100
Antimony	mg/L	0.003	0.0003 ⁵	0.0002 ⁵	0.0002 ⁵	0.0003 ⁵	0.0002 ⁵	0.0003 ⁵	0.0002 ⁵
Arsenic	mg/L	0.007	0.0005	0.0005 ⁵	0.0006 ⁵	0.003	0.0018	0.0015	0.0007 ⁵
Barium	mg/L	0.7	0.05	0.1	0.05 ⁵	0.08	0.05	0.05 ⁵	0.41
Boron	mg/L	4	0.57	0.22	0.44	0.7	0.45	0.72	0.12
Cadmium	mg/L	0.002	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵
Chromium	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
Fluoride	mg/L	1.5	0.97	0.51	0.9	2.05	0.8	0.91	0.23
Lead	mg/L	0.01	0.0011 ⁵	0.0011 ⁵	0.0015 ⁵	0.001 ⁵	0.001 ⁵	0.0011 ⁵	0.001 ⁵
Mercury	mg/L	0.001	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵
Molybdenum	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
Nickel	mg/L	0.02	0.002 ⁵	0.003 ⁵	0.007 ⁵	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.004 ⁵
Nitrate	mg/L	50	36.5	7.76	23.1	82.5	35.6	17	3.81
Annual Exposure to Radioactivity	mSv/yr	1	0.52 ⁵	0.43	0.62	0.74 ⁵	0.72	0.99 ⁵	0.24 ⁵
Selenium	mg/L	0.1	0.003	0.001 ⁵	0.002 ⁵	0.003	0.004	0.005	0.001 ⁵
Silver	mg/L	0.1	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵
Uranium	mg/L	0.02	0.014	0.001	0.004	0.012	0.025	0.02	0.002
AESTHETIC CHARACTERISTICS									
Aluminum	mg/L	0.2	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.03 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵
Chloride	mg/L	250	353	91	485	201	175	520	44.3
Copper	mg/L	2	0.02 ⁵	0.02 ⁵	0.1 ⁵	0.04 ⁵	0.01 ⁵	0.03 ⁵	0.02 ⁵
Hardness	CaCO ₃ mg/L	200	301	138	304	248	249	603	173
Iodine	mg/L	0.15	0.32	0.11	0.32	0.3	0.28	0.37	0.07
Iron	mg/L	0.3	0.07 ⁵	0.06 ⁵	0.08 ⁵	0.03 ⁵	0.02 ⁵	0.02 ⁵	0.04 ⁵
Manganese	mg/L	0.1	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.01 ⁵	0.012 ⁵
pH	pH Units	6.5-8.5	7.68	7.21	7.05	8.11	8.08	7.84	7.48
Sodium	mg/L	180	227	85	214	212	138	301	34
Sulfate	mg/L	250	184	36	152	96	81	233	13
Total Dissolved Solids	mg/L	500	1161	472	1026	972	756	1700	335
True Colour	CU	15	3.39 ⁵	2.93 ⁵	2.28 ⁵	3.47 ⁵	2.67 ⁵	4.33 ⁵	2.5 ⁵
Turbidity	NTU	5	0.63 ⁵	0.87	1.59	0.82 ⁵	0.71	0.52 ⁵	0.83
Zinc	mg/L	3	0.04 ⁵	0.02 ⁵	0.05 ⁵	0.01 ⁵	0.04 ⁵	0.06	0.03
OTHER CHARACTERISTICS									
Alkalinity	mg/L	#	213	232	197	375	260	396	196
Beryllium	mg/L	#	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵
Bromine	mg/L	#	1.9	0.5	1.5	1.0	0.9	3.1	0.2
Calcium	mg/L	#	69	27	39	33	49	96	38
Conductivity	µS/cm	#	1850	819	1741	1637	1242	2676	557
Magnesium	mg/L	#	32.2	29.1	55.2	40.5	30.7	89.4	18.9
Potassium	mg/L	#	24.4	12.8	28	50.9	32.3	60.3	7.99
Silica	mg/L	#	79.9	59	21.3	60.4	86.3	90.8	64.8
Tin	mg/L	#	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵

1 N/A Not Available

2 95th percentile reported

3 value indicates data from 2007-2012

4 value includes data from 2011-2012

5 one or more values in calculation were below detection limits. Result may be higher than actual value

Southern Region			Amplawatja (Ammaroo)	Amunturangu (Mt Liebig)	Apatula (Finke)	Areyonga	Attijere (Harts Range)	Engawala (Alcoota)	Ikuntji (Haasts Bluff)	
	Reported unit	ADWG 2004								
HEALTH CHARACTERISTICS										
E. coli detections ⁴	per year	0	0	0	0	0	0	0	0	
E. coli performance ⁴	%	98	100	100	100	100	100	100	100	
Antimony	mg/L	0.003	0.0003 ⁵	0.0003 ⁵	0.0002 ⁵	0.0003 ⁵	0.0003 ⁵	0.0003 ⁵	0.0004 ⁵	
Arsenic	mg/L	0.007	0.0005 ⁵	0.0006 ⁵	0.0006 ⁵	0.0007 ⁵	0.0005 ⁵	0.0005 ⁵	0.0005 ⁵	
Barium	mg/L	0.7	0.05 ⁵	0.05 ⁵	0.13	0.1	0.055	0.13	0.05 ⁵	
Boron	mg/L	4	0.29	0.26	0.07	0.17	0.14	0.15	0.33	
Cadmium	mg/L	0.002	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0003 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	
Chromium	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	
Fluoride	mg/L	1.5	1.11	1.16	0.2	0.4	0.55	0.6	0.5	
Lead	mg/L	0.01	0.0012 ⁵	0.0011 ⁵	0.0017 ⁵	0.0017 ⁵	0.0021 ⁵	0.001 ⁵	0.0024 ⁵	
Mercury	mg/L	0.001	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	
Molybdenum	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	
Nickel	mg/L	0.02	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.009	0.002 ⁵	0.002 ⁵	0.002 ⁵	
Nitrate	mg/L	50	29.2	17.4	8.9	7.75	29.3	14.8	7.25	
Annual Exposure to Radioactivity	mSv/yr	1	0.47 ⁵	0.28 ⁵	0.21 ⁵	0.36	0.2 ⁵	0.15 ⁵	0.6 ⁵	
Selenium	mg/L	0.1	0.002 ⁵	0.002 ⁵	0.001 ⁵	0.002 ⁵	0.003 ⁵	0.002 ⁵	0.002 ⁵	
Silver	mg/L	0.1	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	
Uranium	mg/L	0.02	0.008	0.006	0.003	0.008	0.007	0.005	0.01	
AESTHETIC CHARACTERISTICS										
Aluminum	mg/L	0.2	0.14 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵	
Chloride	mg/L	250	166	118	146	108	118	136	371 ²	
Copper	mg/L	2	0.01 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.03 ⁵	0.02 ⁵	0.05 ⁵	
Hardness	CaCO ₃ mg/L	200	446	273	187	416	277	377	580 ²	
Iodine	mg/L	0.15	0.18	0.21	0.03	0.09	0.1	0.12	0.25	
Iron	mg/L	0.3	0.02 ⁵	0.06 ⁵	0.09 ⁵	0.09 ⁵	0.05 ⁵	0.09 ⁵	0.08 ^{2,5}	
Manganese	mg/L	0.1	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	
pH	pH Units	6.5-8.5	7.83	7.72	7.6	8.01	8.02	7.91	7.65 ²	
Sodium	mg/L	180	116	99	85	57	113	85	165 ²	
Sulfate	mg/L	250	224	97	57	77	134	61	258 ²	
Total Dissolved Solids	mg/L	500	992	621	462	640	691	705	1266 ²	
True Colour	CU	15	2.81 ⁵	1.93 ⁵	2.2 ⁵	1.83 ⁵	3.25 ⁵	2.89 ⁵	3.86 ^{2,5}	
Turbidity	NTU	5	0.39 ⁵	1.04	0.9	1.19	0.7	3.4	1.28 ²	
Zinc	mg/L	3	0.02 ⁵	0.02 ⁵	0.14	0.05 ⁵	0.03	0.03	0.15	
OTHER CHARACTERISTICS										
Alkalinity	mg/L	#	301	254	123	341	216	123	241 ²	
Beryllium	mg/L	#	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	
Bromine	mg/L	#	0.9	0.5	0.2	0.4	0.5	0.63	1.5	
Calcium	mg/L	#	97	60	53	75	44	69	109 ²	
Conductivity	µS/cm	#	1502	1058	869	1121	1114	1184	1982 ²	
Magnesium	mg/L	#	53.6	30.1	13	55.4	40.6	49.8	74.4	
Potassium	mg/L	#	23.6	13.7	6.4	8.37	8.66	7.3	28.7 ²	
Silica	mg/L	#	39	49.5	16.4	18.8	34.6	68.7	51.6 ²	
Tin	mg/L	#	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	

1 N/A Not Available

2 95th percentile reported

3 value indicates data from 2007-2012

4 value includes data from 2011-2012

5 one or more values in calculation were below detection limits. Result may be higher than actual value

Water quality results

Southern Region (cont.)

	Reported unit	ADWG 2004	Imanpa	Kaitiaki (Docker River)	Laramba (Napperby)	Nitaria (Hermansburg)	Nyirripi	Papunya	Pmara Iutunta (Ti Tree 6 Mile)
HEALTH CHARACTERISTICS									
E. coli detections ⁴	per year	0	0	0	0	0	0	1	0
E. coli performance ⁴	%	98	100	100	100	100	100	98	100
Antimony	mg/L	0.003	0.0003 ⁵	0.0003 ⁵	0.0003 ⁵	0.0002 ⁵	0.0002 ⁵	0.0003 ⁵	0.0002 ⁵
Arsenic	mg/L	0.007	0.0007 ⁵	0.0005 ⁵	0.0008 ⁵	0.0005 ⁵	0.0016 ⁵	0.0008 ⁵	0.001
Barium	mg/L	0.7	0.05 ⁵	0.05 ⁵	0.26	0.05 ⁵	0.09	0.1	0.1
Boron	mg/L	4	0.77	0.14	0.34	0.16	0.33	0.3	0.33
Cadmium	mg/L	0.002	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵
Chromium	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
Fluoride	mg/L	1.5	0.83	0.41	1.1	0.37	1.56	0.96	0.8
Lead	mg/L	0.01	0.0013 ⁵	0.001 ⁵	0.0036 ⁵	0.0011 ⁵	0.0012 ⁵	0.0011 ⁵	0.0024 ⁵
Mercury	mg/L	0.001	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵
Molybdenum	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
Nickel	mg/L	0.02	0.004	0.002 ⁵	0.002 ⁵	0.002 ⁵	0.003 ⁵	0.002 ⁵	0.002 ⁵
Nitrate	mg/L	50	29	1	36.4	4.9	25.8 ⁵	20.4	51.7
Annual Exposure to Radioactivity	mSv/yr	1	0.77 ⁵	0.2 ⁵	0.84 ⁵	0.2 ⁵	0.45 ⁵	0.23 ⁵	0.25 ⁵
Selenium	mg/L	0.1	0.005	0.001 ⁵	0.003 ⁵	0.001 ⁵	0.002	0.006 ⁵	0.002 ⁵
Silver	mg/L	0.1	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵
Uranium	mg/L	0.02	0.011	0.00001 ⁵	0.039	0.005	0.009	0.011	0.008
AESTHETIC CHARACTERISTICS									
Aluminum	mg/L	0.2	0.03 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵	0.02 ⁵
Chloride	mg/L	250	382	89	104	113	102	201	66 ²
Copper	mg/L	2	0.02 ⁵	0.02 ⁵	0.09 ⁵	0.02 ⁵	0.01 ⁵	0.02 ⁵	0.03 ⁵
Hardness	CaCO ₃ mg/L	200	432	275	288	314	242	258	200 ²
Iodine	mg/L	0.15	0.55	0.12	0.3	0.07	0.16	0.25	0.14
Iron	mg/L	0.3	0.23 ⁵	0.13 ⁵	0.06 ⁵	0.1 ⁵	0.04 ⁵	0.04 ⁵	0.05 ²
Manganese	mg/L	0.1	0.018 ⁵	0.008 ⁵	0.006 ⁵	0.007 ⁵	0.005 ⁵	0.005 ⁵	0.005 ⁵
pH	pH Units	6.5-8.5	8.1	8.33	7.82	7.89	8.07	8.05	7.99 ²
Sodium	mg/L	180	231	56	69	62	89	226	66 ²
Sulfate	mg/L	250	244	65	37	62	44	90	37 ²
Total Dissolved Solids	mg/L	500	1283	468	645	541	604	943	514 ²
True Colour	CU	15	4.17 ⁵	2.48 ⁵	2.5 ⁵	2.68 ⁵	2.28 ⁵	2.41 ⁵	3.09 ^{2,5}
Turbidity	NTU	5	7.63	1.17	0.43	1.94	1.62	0.32	0.81 ²
Zinc	mg/L	3	0.25	0.02 ⁵	0.13 ⁵	0.04	0.02 ⁵	0.01 ⁵	0.04 ⁵
OTHER CHARACTERISTICS									
Alkalinity	mg/L	#	207	268	301	260	289	412	211 ²
Beryllium	mg/L	#	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵	0.001 ⁵
Bromine	mg/L	#	1.8	0.5	0.5	0.5	0.4	1.1	0.4
Calcium	mg/L	#	83	52	59	60.6	45.4	52.5	45.4 ²
Conductivity	µS/cm	#	1984	851	1029	963	992	1574	784 ²
Magnesium	mg/L	#	54.6	35.2	34.4	39.5	31.2	30.8	21.5
Potassium	mg/L	#	29.6	11.1	39.4	7.06	26.9	11.4	18.4 ²
Silica	mg/L	#	29.8	12	95.9	15	89	64.8	95 ²
Tin	mg/L	#	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵	0.01 ⁵

1 N/A Not Available

2 95th percentile reported

3 value indicates data from 2007-2012

4 value includes data from 2011-2012

5 one or more values in calculation were below detection limits. Result may be higher than actual value

Southern Region (cont.)

	Reported unit	ADWG 2004	Santa Teresa	Tijikala (Maryvale)	Walangkula (Kintore)	Wallace Rockhole	Yuelamu (Mt Allan)	Yuendumu
HEALTH CHARACTERISTICS								
E. coli detections ⁴	per year	0	0	0	0	1	0	0
E. coli performance ⁴	%	98	100	100	100	98	100	100
Antimony	mg/L	0.003	0.0007 ⁵	0.0002 ⁵	0.0003 ^{2,5}	0.0003 ⁵	0.0002 ⁵	0.0003 ⁵
Arsenic	mg/L	0.007	0.0005 ⁵	0.001	0.0009 ^{2,5}	0.0009 ⁵	0.0007 ⁵	0.0005 ⁵
Barium	mg/L	0.7	0.5	0.32	0.05 ^{2,5}	0.06	0.06 ⁵	0.05 ⁵
Boron	mg/L	4	0.06	0.1	0.28 ²	0.36	0.2	0.28
Cadmium	mg/L	0.002	0.0002 ⁵	0.0002 ⁵	0.0002 ^{2,5}	0.0002 ⁵	0.0002 ⁵	0.0002 ⁵
Chromium	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}	0.005 ⁵	0.005 ⁵	0.005 ⁵
Fluoride	mg/L	1.5	0.2	0.59	0.76 ²	0.78	0.61	0.59
Lead	mg/L	0.01	0.0021 ⁵	0.0011 ⁵	0.0011 ^{2,5}	0.0019 ⁵	0.0019 ⁵	0.0012 ⁵
Mercury	mg/L	0.001	0.0001	0.0001 ⁵	0.0001 ^{2,5}	0.0001 ⁵	0.0001 ⁵	0.0001 ⁵
Molybdenum	mg/L	0.05	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}	0.005 ⁵	0.005 ⁵	0.005 ⁵
Nickel	mg/L	0.02	0.002 ⁵	0.002 ⁵	0.003 ^{2,5}	0.009 ⁵	0.002 ⁵	0.002 ⁵
Nitrate	mg/L	50	12.7	19.1	83.2 ²	14.4	5.21 ⁵	3.26 ⁵
Annual Exposure to Radioactivity	mSv/yr	1	0.41	0.26	0.13 ⁵	0.4	0.17 ⁵	0.48 ⁵
Selenium	mg/L	0.1	0.003	0.001 ⁵	0.004 ^{2,5}	0.004	0.002 ⁵	0.002 ⁵
Silver	mg/L	0.1	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵	0.01 ⁵
Uranium	mg/L	0.02	0.005	0.004	0.002 ²	0.005	0.028	0.009
AESTHETIC CHARACTERISTICS								
Aluminum	mg/L	0.2	0.02 ⁵	0.04 ⁵	0.03 ^{2,5}	0.73 ⁵	0.03 ⁵	0.02 ⁵
Chloride	mg/L	250	13	47	118 ²	148	87	196
Copper	mg/L	2	0.02 ⁵	0.02 ⁵	0.17 ^{2,5}	0.02 ⁵	0.06 ⁵	0.03 ⁵
Hardness	CaCO ₃ mg/L	200	254	222	465 ²	278	114	314
Iodine	mg/L	0.15	0.02	0.04	0.15 ²	0.13	0.13	0.24
Iron	mg/L	0.3	0.08 ⁵	0.07 ⁵	0.04 ^{2,5}	0.29 ⁵	0.15 ⁵	0.36 ⁵
Manganese	mg/L	0.1	0.005 ⁵	0.005 ⁵	0.005 ^{2,5}	0.005 ⁵	0.012 ⁵	0.015 ⁵
pH	pH Units	6.5-8.5	7.74	7.67	7.57 ²	7.62	7.97	7.88
Sodium	mg/L	180	7	54	96 ²	94	81	115
Sulfate	mg/L	250	11	23	67 ²	68	95	113
Total Dissolved Solids	mg/L	500	310	394	853 ²	589	375	696
True Colour	CU	15	2.14 ⁵	2.5 ⁵	2.23 ^{2,5}	3.92 ⁵	4.89 ⁵	2.18 ⁵
Turbidity	NTU	5	0.77	2.36	0.51 ²	36.7 ⁵	2.29	5.04 ⁵
Zinc	mg/L	3	0.03 ⁵	0.05 ⁵	0.03 ^{2,5}	0.1	0.05 ⁵	0.2
OTHER CHARACTERISTICS								
Alkalinity	mg/L	#	275	242	405 ²	233	95.8	238
Beryllium	mg/L	#	0.001 ⁵	0.001 ⁵	0.001 ^{2,5}	0.001 ⁵	0.001 ⁵	0.001 ⁵
Bromine	mg/L	#	0.05	0.1	1.08 ²	0.4	0.6	1.78
Calcium	mg/L	#	64	62	73.4 ²	63.6	30	34.1
Conductivity	µS/cm	#	553	699	1336 ²	1091	671	1196
Magnesium	mg/L	#	22.7	16.6	68.4 ²	29	9.6	37.3
Potassium	mg/L	#	4.5	5.21	5.2 ²	9.28	5.72	16.4
Silica	mg/L	#	17.5	35.6	88.9 ²	16.6	5.77	15.7
Tin	mg/L	#	0.01 ⁵	0.01 ⁵	0.01 ^{2,5}	0.01 ⁵	0.01 ⁵	0.01 ⁵

1 N/A Not Available

2 95th percentile reported

3 value indicates data from 2007-2012

4 value includes data from 2011-2012

5 one or more values in calculation were below detection limits. Result may be higher than actual value

Appendix

Water and energy efficiency

WHY IT MATTERS

Life in the Territory is influenced by our environment. We live amidst expansive deserts in the south and wet / dry tropics in the north, with every climatic condition they bring. Seasonal extremes vary from very hot to very cold and very wet to dry. This can lead to increased use of electricity for heating and cooling, high water use for plants and gardens, keeping clean and staying cool.

Delivery of services

Delivering power and water safely and efficiently to remote homes in this environment is challenging. We live with the potential for fire, annual flooding, storms and cyclones, termites and ants disrupting supplies.

Power and Water services small populations across vast distances, meaning there are numerous small local power generation and groundwater pumps systems. Durable and reliable infrastructure is required to withstand the elements with less need for maintenance.

These factors make it costly to deliver services in remote areas of the Territory.

Supply cost influences

The majority of electricity in remote communities is supplied through diesel fuelled power stations, complemented by five renewable energy power generation plants in remote communities, with a further three in construction.

Diesel power is highly reliable and robust, however disadvantages include dependency on

fossil fuels with predicted price rises and the environmental impacts of carbon emissions. Increasing renewable energy generation and high efficiency power generation is essential to address the rising cost to produce energy.

Growing demand

Demand for water and power is growing as population grows and improved standards of living are achieved. The tariff consumers pay for energy is much lower than the actual cost of production. Currently the cost to supply essential services is subsidised by government.

The growth in demand results in a growing 'gap' between the costs of delivery and revenue received, and also requires further upgrades of the system and assets.

The cost to produce water and energy is much higher in remote locations.

Customer cost

Utilising these essential services in homes and businesses comes at a financial cost to the end user. All customers across the Territory pay a uniform tariff for power, water and sewerage services whether they live and work in the bush or towns.

Using power and water efficiently means less consumption and therefore reduced costs to consumers. Simple changes in water and energy use behaviour or upgrades to water and energy efficient appliances at work and at home will help to manage and reduce money spent on essential electricity and water.

Limited water resources

Of the 72 communities serviced, 95 per cent rely on groundwater, which is limited.

Despite monsoonal rainfall in the north and large underground aquifers in the south, much of the water is not available or suitable for human use because quality and/or quantity is variable or cost prohibitive to access.

One third of these communities are considered 'water-stressed' due to three main factors:

- ▶ Demand growth is greater than available water sources
- ▶ Limited availability of alternative water sources
- ▶ Current water use is too high - posing a threat to water sources in the future.

The cost to produce water and energy is much higher in remote locations.



Power and Water's Kylie Climie discussing water efficiency with Minyerri residents.

WHAT IS WATER AND ENERGY EFFICIENCY AND HOW DO WE IMPLEMENT IT?

Working together

To manage the cost and achieve the benefits, we all need to work together. Successful demand management requires:

- ▶ Leadership from all levels of government and private sector in efficiency measures
- ▶ Strong financial and educational signals to customers and shared commitment
- ▶ Cooperation across agencies and local organisations in improving efficiencies
- ▶ Engagement with customers (community residents, commercial and governments)
- ▶ Ability to fund cost-effective appliances and measures

What should be done?

Realising the potential for efficiency will require a range of measures, which can be summarised in to:

- ▶ Technical measures including efficient fixtures, fittings and appliances and fixing leaks
- ▶ Education of consumers about the benefits of reducing excessive discretionary use of water and energy
- ▶ Clear and direct incentives defined and implemented to encourage government and households to adopt water and energy efficiency appliances and to use water and energy wisely

This requires Power and Water to work with governments and the communities to improve awareness and promote behaviour change. We will provide leadership by initiating and managing various programs aimed to improve resource efficiencies.

The journey

Water and energy efficiency in remote areas began with Power and Water improving efficiency in power generation with the introduction of smart technology and use of renewable energy.

Power and Water has been working with a number of 'water-stressed' communities expanding education and awareness about why and how to save water. This has involved direct marketing and promotion to government staff, community organisations and the general public. Energy awareness materials are being developed and will be promoted widely across remote areas from early 2013.

Strengthening our approach

Over recent years, Power and Water has been developing its approach to improve efficiency in remote communities, which includes:

- ▶ Place-based programs addressing the highest risks which target communities that have highest growth or are water-stressed locations or have the higher cost to supply services
- ▶ Continuous improvement programs including water leak detection and supply upgrade programs
- ▶ Integration of 'low emission' energy sources through solar, gas and wind expansion; where it is cost effective

- ▶ Expansion and refinement of water resource monitoring programs
- ▶ Improved efficiency of diesel generation
- ▶ Working with communities to design education programs that are suitable and encourage change in the most effective manner
- ▶ Continuing to extend collaborative and persuasive efficiency programs
- ▶ Raising awareness and education through general marketing and media or targeted programs for remote government employees

Community effectiveness programs include:

- ▶ Smart metering, retrofits and community-wide behaviour change programs in Gunbalanya and Milingimbi;
- ▶ Water education programs in Galiwin'ku, Ali Curung, Kintore, Beswick, Minyerri and Nauiyu Nambiyu
- ▶ A trial of efficient fixtures and fittings retrofitted to existing public housing stock in Gunbalanya
- ▶ Commercial efficiency audits for the five major commercial/government facilities in six community locations in 2012-13

USEFUL TERMS

Water efficiency is achieving maximum the benefit from water used. This means achieving the same benefit from water (e.g. watering, cooling, cleaning) with less.

Water conservation refers to preventing wasteful or excessive use of water resources.

Water demand management includes water efficiency measures such as regulations, price changes and infrastructure improvements intended to reduce demand on potable water supplies.

Energy efficiency is achieving the maximum benefit from energy used. Similar to water efficiency, this means getting the

same benefit from energy use (e.g. air-conditioning, cooking, refrigeration) while using less electricity.

Energy demand management is the modification of consumer demand for energy through various methods. Usually the goal of demand side management is to encourage the consumer to use less energy during peak hours, which is the time when most energy is being used. Supplying this peak demand requires costly infrastructure investment.

Moving ahead

Power and Water aims to increase awareness and achieve efficiency gains across remote communities through:

- ▶ Expansion of staff awareness and outreach to remotely-based government staff
- ▶ Expansion of 'social marketing' approaches promoting water and energy efficient behaviour across media in remote areas
- ▶ Plan for rolling out of water meters to all lots across the 72 communities;
- ▶ Continued implementation of improvements to systems including water supply efficiency, leak detection and diesel displacement by more efficient and cost-effective energy sources
- ▶ Seeking opportunities to improve market access for efficient consumer goods in remote areas of NT
- ▶ Prepare energy and water efficiency information and educational material for all customers
- ▶ Seek collaboration opportunities with Commonwealth agencies under linked programs for climate change, water management and energy efficiency to expand the program across the largest and prioritised communities

Efficiency can only be achieved sustainably by working with key stakeholders from businesses, governments and communities. Everyone plays a key role in securing water and energy supplies in a changing climate. Help manage household costs and improve the sustainability of the Territory lifestyle.

Information to assist with promotion and education about environmental sustainability is available from our website:

http://www.powerwater.com.au/sustainability_and_environment/remote_sustainability_initiatives/water_resource_management/use_less_water_campaign

Appendix

Providing safe water

Power and Water obtains water from 70 isolated natural groundwater and surface water sources to supply water services to remote communities. These natural water sources vary significantly in quantity and quality presenting challenges to ensure residents receive adequate safe water through their taps.

Power and Water provides safe drinking water to residents across 1.3 million square kilometers while minimising financial costs and environmental impacts of our operations.

ENSURING ADEQUATE WATER IS AVAILABLE

Most of the water supplied to remote communities comes from underground aquifers (groundwater sources) pumped to the surface by production bores. The number of bores at each community varies depending on the amount of water available and the demand. Ideally, production bores are able to pump enough water to meet the needs of the community, including in the event of a failure or routine maintenance of the largest production bore.

However, as communities grow and need more water, new water sources have to be located. As well as working with the communities to reduce water demand, Power and Water routinely searches for and develops water sources. This may involve drilling more production bores within the existing aquifer or integrating new water sources into the water supply system.

New sources are required when the existing water source is at risk of over-extraction which could impact the quantity or quality of water or result in

the resource drying up altogether. Approximately one third of the water sources used to supply the Territory Growth Towns and remote communities are at risk of over-extraction.

Some water from aquifers in Central Australia is believed to be more than 10 000 years old while groundwater in the Top End may be just a few years old.



Drilling new production bores.

Power and Water manages a robust water source monitoring program to reduce the risk of over-extraction. This is carried out by routinely collecting water level data on 232 bores to determine their security and the impact of current extraction on long-term viability of the water source. This data is used to inform the operation of production bores and for replacement planning and prioritisation of water efficiency programs.

PROTECTING PUBLIC HEALTH

Over the last five years, Power and Water has applied a 'multi-barrier' approach to drinking water delivery. Multiple barriers are in place so if one fails; other systems prevent or reduce potentially harmful contaminants from reaching consumers. This approach reflects more than a century of supplying water and supporting public health practices. Ensuring water supplies are continuously disinfected is key to reducing consumers' exposure to disease causing micro-organisms.

Chlorine is the preferred purifier as it is simple to use, destroys pathogenic micro-organisms effectively and provides protection through the distribution system.

Chlorine levels are maintained in the optimum range – high enough to combat any microbiological contamination and low enough to avoid affecting the taste of the water.

Power and Water has installed nearly 40 new automatic disinfection systems (chlorination, ultraviolet) and Supervisory Control and Data Acquisition (SCADA) systems to allow online monitoring. Replacement of older disinfection systems with modern systems to improve the reliability and efficiency of disinfection is on-going.

In addition to potential microbiological contamination, interaction between water in the aquifer and surrounding geology can result in a wide range of naturally occurring minerals and deposits in water. When water is stored for longer periods in deeper aquifers it can result in 'rich' water chemistry. In some communities these characteristics exceed levels recommended in the Australian Drinking Water Guidelines. Power and Water is building advanced water treatment systems to improve the physical and chemical quality in the three

highest priority communities. A number of fact sheets have been developed to provide information on specific aspects of water quality relevant to some communities.

Power and Water monitors the quality of drinking water supplied to consumers in all remote locations, verifying consistency with the Australian Drinking Water Guidelines. The program is reviewed annually in consultation with the Department of Health (DoH) and includes daily testing for chlorine residual to ensure effective disinfection and regular water sampling to test for microbiological contamination. The physical and chemical characteristics of the water are also analysed.

MAXIMISING OPERATIONAL EFFICIENCIES AND MEETING SAFETY OBLIGATIONS

Power and Water is introducing online monitoring at critical water supply points, allowing signals to be sent to operators immediately when problems occur. This significantly reduces response times enabling staff to identify and address problems without necessarily having to travel to the site.

Storage and handling of chemicals used to treat water supplies is subject to relevant standards. New chlorine disinfection systems being installed are more efficient and comply with national safety and chemical standards. In the short to medium-term, Power and Water will improve existing chlorine disinfection facilities until these systems are replaced.

Improvements include shade structures, safety showers for operators and bunding to contain stored chemicals preventing release to the surrounding environment in the event of a spill.

To ensure environmental and safety obligations are met, best practise operational procedures suitable to our operational environment have been adopted. These have been supported with business improvements that help ensure the safety of our water system operators through the development of emergency response procedures for the installation of the new chlorination and fluoridation systems.

For more information see the [Water Quality Results appendices](#)

Appendix

Effective sewerage services

Maintaining sewerage services is an important, often overlooked part of the delivery of essential services. Power and Water plans to provide effective sewerage services and meet growing demands while minimising the financial cost and environmental impact of our operations.

EFFECTIVELY REMOVING SEWAGE FROM HOUSEHOLDS

Safe drinking water is provided to each house through one set of pipes. Another set of pipes takes away the wastewater collected through the drains such as kitchen and bathroom sinks and the toilet.

In most communities the wastewater drains into a network of underground pipes and flows to the treatment ponds. Power and Water staff and Essential Services Officers (ESOs) make sure these pipes don't become damaged or blocked.

Where communities don't have sewerage ponds the wastewater from the house goes into privately owned and managed septic tanks.

MAXIMISING OPERATIONAL EFFICIENCIES

The selection of sewerage infrastructure is a key aspect of the approach to maximise operational efficiencies and ensure delivery of effective sewerage services.

Sewerage services are provided by taking wastewater off site through pipes and pump stations to centralised waste stabilisation ponds for treatment and appropriate disposal.

In the majority of communities with sewerage services, wastewater is collected from households using the force of gravity, which minimises operational costs. Sewerage pump stations are only used in low areas of the network to raise the wastewater and effectively transport it to the wastewater treatment system.

While in many other parts of Australia wastewater is treated using complex mechanical, chemical and biological systems, our waste stabilisation ponds are simple, efficient and very effective in treating wastewater. These pond systems require very little maintenance as they use the sun and warm temperatures to create an ideal environment for algae and bacteria to naturally treat the wastewater.

Power and Water is continuing to place telemetry systems on critical parts of sewerage infrastructure to provide real-time information about performance until Supervisory Control and Data Acquisition (SCADA) systems are installed.

As with the water distribution system, the management of wastewater reticulation is challenging with the majority of pipes underground. In high priority systems, Closed Circuit Television (CCTV) is used to monitor and identify the need for replacement or repairs.

Power and Water continues to investigate and trial inspection and maintenance methods to further improve operational efficiencies.

MINIMISING IMPACT ON THE ENVIRONMENT

Wastewater is collected in treatment ponds. Sunlight, algae and bacteria break down the organic matter, nutrients and disease causing organisms in the wastewater. Treated wastewater evaporates, is released into a river or the ocean or used for irrigation in the pond area. Some low levels of pollutants remain and are taken into consideration with existing disposal methods, reuse or recycling. Historically, this has included at least two ponds at each site holding water for at least one month to achieve the appropriate quality required for release.

Power and Water will continue working with the Department of Land Resource Management towards licensing remote area wastewater discharges. Licensing will allow better collection of data on wastewater systems and the environments they discharge to as well as meeting regulatory requirements.



Refurbishing a sewerage pump station.

A new funding program is required in wastewater assets to replace infrastructure and increase system capacities, including wastewater reticulation networks, sewerage pump stations, wastewater ponds and discharge systems.

In 2012-13, Power and Water has started to implement a wastewater quality monitoring program in four communities to study pond performance and discharge quality

STATUS OF WASTEWATER SYSTEMS

Over half the wastewater system infrastructure in the Northern Territory was constructed prior to self government and since then investment in these systems has been largely focused on operational performance.

As a result, at some locations there are growing concerns about infrastructure condition and services which includes collapsing of wastewater reticulation networks, undersized sewerage pump stations and wastewater treatment ponds that are operating significantly over their original design capacity.

Appendix

Providing reliable power

Demand for electricity is increasing steadily, particularly in Territory Growth Towns where various government initiatives are delivering more housing, infrastructure and services. Increasing costs of diesel fuel and operating stand-alone power stations continues to impact the overall delivery costs of electricity services in remote areas.

Power and Water has a three-pronged approach to ensure reliable power supplies, meet growing demands and minimise the financial cost and environmental impact of our operations.

ENSURING ENOUGH POWER IS AVAILABLE

At each power station there are up to four diesel generators, the sizes of which match the daily and annual power needs of the community.

The generators are sized to meet demand when the largest of the generators is off line, which can occur for routine maintenance or as a result of a fault. As communities grow and need more power, the smallest generator is replaced with a larger generator to maintain capability. This allows each generator to operate at optimal efficiency and use the least amount of diesel fuel.

Generators are refurbished and relocated to another suitable community until they reach the end of their economic life after 50,000 operating hours. This power station upgrade and generator relocation program requires annual evaluations of over 170 generators to ensure that each power station operates efficiently, return on capital investment is maximised and demand is met.

Power and Water Corporation works to improve key power station infrastructure in all of the communities, including:

- ▶ 11 new power station buildings constructed, control systems upgraded and larger generators installed at seven sites;
- ▶ Control system upgrades and larger generators (either new or refurbished) installed at 18 communities;
- ▶ Larger generators at eight sites; and
- ▶ Increased diesel fuel storage capacity at 25 sites and upgraded bunding consistent with national standards at 24 sites.

Power stations are managed through control systems that remotely turn generators on and off to ensure each are operating within optimal range to maximise fuel efficiency. In the event of a generator failure or a fault on the power distribution network, these control systems will maintain electricity supply to as many customers as possible.



Each generator is maintained and checked daily by ESOs with major generator overhauls carried out by specialist contractors at regular intervals based on the number of operating hours.

In 2012, 29.63 million litres of diesel fuel was transported to remote Territory power stations.

Diesel is the primary fuel used in remote power stations and maintaining appropriate reserves at each community is a major logistical feat. Fuel storage at each location is determined considering the efficiency of generators, the method of delivery and how often they can be made.

Power and Water works closely with fuel contractors to overcome distances, access limitations and extreme climatic conditions to ensure fuel is delivered cost-effectively when required.

MAXIMISING OPERATIONAL EFFICIENCIES

Power and Water generates and distributes electricity to customers at the lowest cost possible.

Through regular monitoring, efficiency measures are identified and the target of generating at least one kilowatt-hour of electricity for each 2.8 litres of diesel fuel used can be achieved. When new generators are required or when generators have reached the end of their economic life, they are replaced with modern, more efficient systems.

Power and Water has a program to decommission less efficient power stations by connecting power distribution networks between communities or to urban centers where communities are geographically close. To date, this has led to the decommissioning of five power stations.

In recent years the cost of diesel fuel has increased significantly. Combined with the introduction of a carbon pricing scheme, it has become more cost effective to switch to alternative energy sources in some locations.

The cost of alternative energy sources is monitored to identify opportunities that can be incorporated into our systems.

Power and Water is committed to reducing carbon emissions from electricity generation by increasing the use of renewable energy and gas-generated electricity.

Power and Water has established solar-diesel hybrid power stations in five communities and will connect a further three communities. We are also looking to switch to gas-generated power connected to the Darwin-Katherine, Tennant Creek or Alice Springs electricity networks or by converting power stations close to gas pipelines.

Power and Water aims to build solar systems where they can be economically integrated with diesel power stations and provide up to 30 per cent of the power.

Retaining diesel generation is necessary when solar is not available and avoids the need for expensive energy storage systems.

Solar-diesel hybrid systems of this type provide long-term cost savings by replacing diesel fuel used for energy generation with renewable energy.

MEETING ENVIRONMENTAL AND SAFETY OBLIGATIONS

New solar systems are being installed in Ti Tree, Kalkarindji and Lake Nash as well as a wind system in Lake Nash. A gas power station is being built in Wadeye.

To ensure environmental and safety obligations are met, Power and Water adopts best practice operational procedures suitable to our unique and challenging operating environment. These procedures have been supported with business improvements which helps ensure the safety of power station operators is maintained.

Measures include the removal of asbestos from eight communities and replacement of lead acid batteries with maintenance-free batteries. Suitable fuel storage infrastructure complies with relevant standards and licensing.

Power and Water is upgrading fuel storage bunding and other containment measures to prevent release of fuel to the environment in the event of a spill.

In addition, personnel access and the refueling procedure has been improved to further protect the safety of operators. The up-grade program has been prioritised for the highest risk sites, with over 75 per cent of sites now compliant with Australian fuel storage standards.



Appendix

ESO training and employment

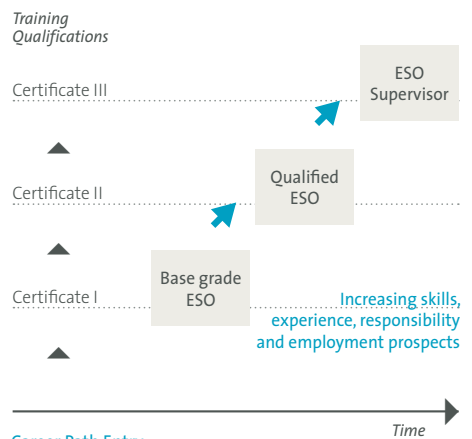
Essential Services Operators (ESOs) are crucial in the delivery of power, water and sewerage services in remote areas. These ESOs are responsible for carrying out a range of regular operational and maintenance tasks. They are our “eyes” on the ground and the first to respond to unplanned supply interruptions and emergencies.

More than 150 ESOs are based across Territory Growth Towns and remote communities, working for shires or private contractors under contracts with Power and Water.

The role of ESOs in communities provides valuable jobs for local people.

Power and Water is committed to building local capacity and providing training and development opportunities to ensure that ESOs continue to deliver essential services.

Power and Water is working to build local capacity by providing training and development opportunities, with a particular focus on increasing the portion of ESOs who are Indigenous. We are doing this in partnership with Charles Darwin University (CDU), Group Training NT (GTNT) and the Shires by providing a structured career path for ESOs to gradually develop the necessary skills to carry out ESO duties.



Career Path Entry:

1. Existing competent and experienced ESO
2. New Trainees (including from high school)

At present, 47 per cent of our 150 ESOs are Aboriginal or Torres Strait Islander.

This career path is being incorporated in contract arrangements starting with the MacDonnell, Central Desert and Roper Gulf Shires. Under new contracts, ESO supervisors provide:

- ▶ On-the-job tuition;
- ▶ Assistance with formal training; and
- ▶ Mentoring to support ESO trainees along their career path

The career path is designed to support existing ESOs as well build capacity in new people in the role.

This is being achieved through the training and development program which provides the framework to progressively obtain appropriate qualifications and skills through partnerships with CDU, GTNT and the Shires.

Power and Water instigated the program in 2012 with the first group of new trainees. We plan to establish the program over the next three years.

In the longer term, Power and Water aims to have at least 50 per cent of ESOs with certificate II or III qualifications by 2014 and the portion of Indigenous employees increased to 60 per cent by 2020.

ESO Employment	% Total	% ATSI*	Total ESOs
Base Grade ESO	62%	36%	93
Qualified ESO	21%	8%	32
ESO Supervisor	17%	3%	25

* Identified as Aboriginal and Torres Strait Islander (ATSI)

	Total	47%	150

ACHIEVEMENTS TO DATE

To date these building blocks of the training and development program have been established:

- ▶ Over 30 new trainees commenced Certificate II training in Remote Area Essential Services which involved training sessions at CDU regional campuses in Katherine and Alice Springs. By 2013, these trainees are expected to complete training through on-the-job visits in communities by CDU.
- ▶ The former familiarisation course has been replaced with accredited training sessions at Certificate II and III level which incorporates Occupational, Health and Safety (OHS) training and refresher sessions.
- ▶ The OHS component included Induction, Back2Basics, Power and Water obligations; confined space awareness; portable ladder safety; chemical safety; lone and remote work safety; personal protective equipment; spill prevention; trench safety and the accredited 'Working Safely at Heights'. Training sessions have been conducted in Darwin, Alice Springs and Katherine

Specialised training included:

- ▶ Gas chlorine disinfection and fluoridation dosing within six communities to ensure the ESO can safely operate disinfection and dosing systems. This training is accredited within the Certificate II Water Operations qualification.
- ▶ ESO supervisors from the Central Desert Shire and MacDonnell Shire participated in Power and Water's team leader development program.



ESOs at generator maintenance training.

OUTCOMES FOR COMMUNITIES

The approach to training and development of ESOs supports local Indigenous employment by increasing community employment capacity with long-term jobs in communities.

The structured career path provides a framework for trainees and ESOs to progress their competencies and capabilities while staying within the communities.

Once qualified, ESOs will have a range of career opportunities in the utility, local government and mining sectors.

FOCUS FOR 2013

We will continue to leverage this successful training and development program by providing opportunities for school leavers through targeted numeracy and literacy programs together with basic trade and communication skills at Certificate I level. This will ensure career opportunities and provide a foundation for the ESO trainee program.

Power and Water will continue to implement Certificate II training in Remote Area Essential Services for eligible base grade ESOs.

Contractual arrangements with shires and private contractors will be improved to support the training and development program requirements to help achieve positive outcomes.



CONTACT US

Call 1800 245 092
Email customerservice@powerwater.com.au
Visit powerwater.com.au
Follow **PowerWaterCorp** on *Twitter*

HEAD OFFICE

Level 2, Mitchell Centre
55 Mitchell Street, Darwin
GPO Box 1921
Darwin NT 0801

CUSTOMER SERVICE CENTRES

Shop 28, Ground Floor, Mitchell Centre
55 Mitchell Street, Darwin

Shop 21, Palmerston Shopping Centre
10 Temple Terrace, Palmerston

Ground Floor, Government Centre
5 First Street, Katherine

Ground Floor, Government Centre
Peko Road, Tennant Creek

Shop 8, Alice Plaza
36 Todd Mall, Alice Springs

Printed on recycled paper.

ABN 15 947 352 360

