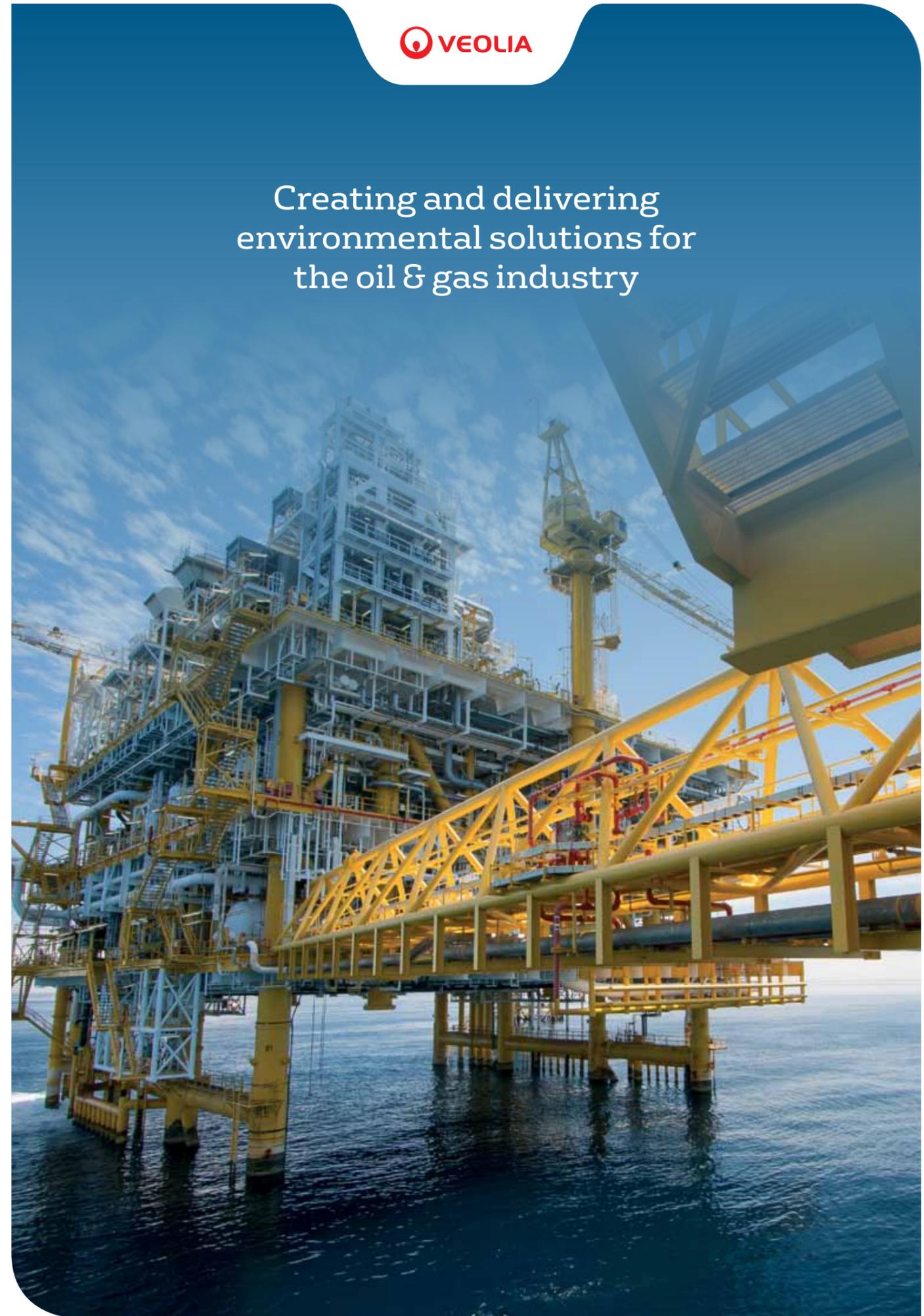


Creating and delivering
environmental solutions for
the oil & gas industry

Resourcing the world

Veolia Australia and New Zealand
www.veolia.com.au



Veolia is a leading provider of environmental solutions to the oil and gas sector across water and wastewater services, industrial cleaning, facilities maintenance, waste management, resource recovery and energy services.

Veolia helps companies in the oil and gas sector to maximise productivity while limiting their environmental footprint.



Improve profitability, productivity and stakeholder engagement

A valued partnership with Veolia provides customers within the oil and gas sector:

- > **Security of supply:** Exceptional project planning and implementation ensures our customers facilities run at full operational capacity; minimising delays, equipment downtime and interruptions.
- > **Access to flexible and highly skilled labour:** National coverage and a significant employee base allows our customers the flexibility required for various projects, including remote and/or regional operations. With over \$4M spent on training in 2014 alone, Veolia can provide the skilled labour needed to deliver efficiency and reliability to the oil and gas sector.
- > **Delivery of technical innovation:** Veolia works closely with customers to deliver innovative technical solutions to increase efficiencies, reduce risks and increase safety performance.
- > **Access to both specialised and bundled service capabilities:** Veolia can provide solutions which bundle our specialised capabilities across water, waste, industrial solutions and energy services; delivering economies of scale and a truly robust environmental competence.
- > **Community consultation and stakeholder engagement:** Our goal is to work with your organisation on delivering meaningful community education around water, waste and energy management in relation to oil and gas, ensuring transparency and accessibility.

Delivering innovation to meet our customers' needs

SANTOS AUSTRALIA:

Santos is a leading oil and gas producer, supplying customers across Australasia. Santos is also one of Australia's largest producers of gas to the domestic market and has the largest exploration and production acreage position in Australia of any company

Partnering with Veolia

Across Australia, Santos has partnered with Veolia for the provision of services across industrial water, waste and resource management. Veolia continues to deliver innovative solutions to help Santos maintain site and operational efficiency whilst also limiting long-term environmental impacts.

Santos Cooper Basin – Moomba, South Australia

Santos's Moomba facility accepts production from 115 gas fields and 28 oil fields containing 536 producing gas wells and 177 producing oil wells. To date, approximately A\$8 billion has been invested in the Cooper Basin joint venture, making it Australia's largest ever onshore resources project.

In January 2012, Veolia was engaged by Santos to provide the following services in the Moomba and Ballera region:

- > Waste Management of the Moomba and Ballera Waste Management Facility(s)
- > Waste collection from the camps & rigs
- > Waste/recycling segregation – Recyclables despatch from the field to Adelaide – Airport ticketing & baggage handling services
- > Sludge treatment plant operations

Challenge: Delivering a comprehensive facilities management service focused on sustainability and employee education.

As a specialist waste management company, Veolia was engaged to provide core services to the client. Santos however sought a greater solution which provided holistic staff engagement with a particular focus on recycling and waste management education and training.

Solution: Through the delivery of Veolia's Getting Wise about Waste Program, partnered with regular on-site training for both

Santos personnel and their contractors, Santos's recycling levels have significantly improved. This further enabled a reduction in waste contamination levels and residual waste disposal.

Santos Roma and Fairview – Roma and Fairview, Queensland

The Santos assets in the Roma area comprise approximately 70 small to medium gas fields and several small oil fields.

The fields are gathered via approximately 500 kilometres of flowlines with the assistance of 16 nodal compressors and flow to ML1A meter station dehydration units. Here, water and condensate separation is undertaken prior to the flowing into the Wallumbilla LPG plant for compression.

Veolia was awarded a contract for the design and supply of the Water Desalination Packages for the Santos GLNG Upstream project. Capacity: 20 MLD (Fairview) and 10 MLD (Roma).

Challenge: Santos were seeking a solution to treat associated CSG produced water to remove fine coals, TSS, TDS, iron, manganese, silica (SiO₂) and produce water suitable for environmental discharge and reuse and aquifer recharge.

Solution: Through design and installation of the water desalination technologies, Veolia now treats CSG associated water at Fairview (TSD ~ 5,000 ppm) and Roma sites (TSD ~ 2,000 ppm) to remove coal fines, TSS, TDS, Algae, Iron and Manganese.

Further, through the delivery of this technology, Veolia's plant can handle varying feed water without any add-on scope, whilst also delivering minimum chemical consumption. The multi-stage design also delivered safe-guards to ensure all treated water was compliant with ANZECC river discharge limits (Fairview) and ADWG (Australian Drinking Water Guidelines) (Roma).

Case studies

TECHNICAL INNOVATION

QGC: Supplying a highly specialised water treatment solution for Coal Seam Gas production

Challenge: QGC is a leading coal seam gas explorer and producer focused on establishing the world's first project to convert coal seam gas into liquefied natural gas – Queensland Curtis LNG (QCLNG). QGC was in search of a partner who could operate and maintain the company's three water treatment plants situated in the Surat Basin that support coal seam gas production.

Solution: In April 2013, Veolia was successfully awarded a 20-year contract to operate and maintain QGC's three water treatment plants, which treat groundwater produced alongside natural gas. Veolia was chosen for its unique expertise in managing the complete production water treatment cycle in the complex field of unconventional oil and gas.

Utilising a highly skilled team of 55 employees including electricians, instrument technicians, plant operators and water engineers, Veolia provide operations and maintenance services to the water treatment plants ultrafiltration, ion exchange, reverse osmosis and brine concentration equipment in addition to pump stations and electrical substations.

DELIVERING VALUE

ICHTHYS LNG PROJECT: Supply and installation of energy efficient cooling solution for Ichthys Onshore LNG Plant

Challenge: The Ichthys LNG Project is one of the world's largest LNG developments. A key challenge for the gas plant development in Darwin was to find a reliable and efficient cooling solution that would ensure optimal comfort conditions for site operations.

Solution: In 2014, Veolia was awarded a contract to supply, install, test and commission large kilowatt air cooled chillers and building management control systems for the Ichthys LNG Project onshore gas plant. Once commissioned, the integrated comfort solution will provide air conditioning throughout buildings on site and to a control room that drives critical processes for Ichthy's onshore and offshore operations.

Fundamental to the successful operation of the HVAC systems installed, the building management control system will provide vital operational information to improve decision making and enhance energy efficiency, comfort and well being of staff onsite.

The project continues to sustain the highest standards in safety with no Lost Time Incidents to date.

ACTING RESPONSIBLY

ARROW ENERGY: Partnering with the industry to minimise environmental impacts

Challenge: Arrow Energy required a solution for the effective identification, treatment and remediation of all drill mud and cuttings, pits and land located geographically close to the current drilling campaign.

Solution: Since 2012, Veolia's resource recovery and industrial services division have been engaged by Arrow Energy to assist in the collection and remediation of waste as a result of upstream CSG exploration and production operations. As a result of this partnership, Veolia provided the ongoing identification and disposal of waste through testing regimes, as well as removing all drill mud and cuttings, and backfilling and reshaping surrounding land.

By providing a flexible contract management service, Veolia helped to maintain Arrow's strong environmental commitment, delivering total remediation of all legacy waste on-site.



Delivering solutions at every stage of the oil and gas lifecycle

UPSTREAM
Exploration and Processing Phase

MIDSTREAM
Transportation and Processing

DOWNSTREAM
Refining

WATER

- Water injection
- Offshore produced water treatment
- Onshore produced water treatment
- Desalination for drinking and utility water
- Containerised mobile units
- Pilot plants
- Guaranteed operations and maintenance

- Water and wastewater treatment plants
- Potable water systems
- Refurbishments, upgrades and modifications
- Recycling and reuse Zero Liquid Discharge (ZLD)
- Selective Salt Recovery (SSR)
- Guaranteed operations and maintenance

- Water pre-treatment
- Produced water treatment including resource recovery
- Process water treatment
- Wastewater and sludge treatment
- Recycling and reuse
- Guaranteed operations and maintenance

ENERGY

- Energy study of camps and accommodation facilities
- Process cooling systems design and construction
- Comprehensive energy asset management plans
- Energy audits and optimisation studies
- Long-term carbon performance management

- Energy audits and optimisation studies
- Design/construct cogeneration power station and steam production utilities
- Heating, ventilation and cooling services
- Integration of heat recovery, renewable energy and efficiencies
- Maintenance/operation of power station, utility distribution and networks

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WASTE / INDUSTRIAL SERVICES

- Design and construction of on-site waste treatment facilities including landfills and sorting facilities
- Collection and recovery/recycling of camp and well site waste
- Comprehensive waste management plans
- Well site remediation and rehabilitation
- Weed and seed wash down services inc. certificates

- Industrial cleaning services: high and ultra-high pressure water jetting, vacuum loading, robotic cleaning, chemical cleaning, abrasive blasting, scaffolding, protective coatings, tank degassing, inert vessel entry, catalyst removal and shutdown services
- Industrial waste management, resource recovery and bulk liquid transport
- Facilities management services
- Pond de-watering and de-silting
- Waste salt management (supporting Coal Seam Gas operations)

- Remediation and rehabilitation services
- Hazardous waste management treatment and recovery
- Vessel entry and industrial cleaning
- Industrial cleaning services: high and ultra-high pressure water jetting, vacuum loading, robotic cleaning, chemical cleaning, abrasive blasting, scaffolding, protective coatings, tank de-gassing, inert vessel entry, catalyst removal and shutdown services

Sustainability

COMMITTED TO THE COMMUNITY AND SUSTAINABLE DEVELOPMENT

Since 1999, Veolia has also made a commitment to the principles of sustainable development. As such, we are focused on delivering economic, environmental and social benefits across Australasia as we face immediate and long-term challenges.

We know that our customers and the community expect us to be responsible and transparent and as such, Veolia in Australia has been publishing an annual Sustainable Development Report since 2003.

DELIVERING OCCUPATIONAL, HEALTH AND SAFETY EXCELLENCE

Veolia's operating divisions are focused on excellence across occupational health and safety. Veolia's 4000 employees are trained in risk identification and mitigation to reduce safety incidents and ensure that Veolia demonstrates an exemplary health and safety record. In 2014 alone, Veolia's lost time injury frequency rate was reduced by 60%.

Veolia's divisions also hold certification across Safety AS/NZ 4801, Environment ISO 14001 and Quality ISO 9001.

OUR VISION FOR RECONCILIATION

Veolia Australia's vision for reconciliation is to walk alongside and work together in partnership with Aboriginal and Torres Strait Islander peoples to offer leadership, enhance respect and understanding, and create sustainable opportunities in the communities in which we live and operate.

Our first Reconciliation Action Plan (RAP) was implemented on 27 May 2014 and provides a formal commitment by our company and by all of our employees to extend opportunities to indigenous Australians.

