

# ENSURING LONG-TERM WATER SECURITY

The Murrumbidgee to Googong Water Transfer increases the effectiveness of Googong Dam's storage capacity and the diversity of water sources in the ACT region.

MAIN CONSTRUCTION COMPANY : Bulk Water Alliance (John Holland, Abigroup & GHD)  
DEVELOPER : ACTEW Corporation (ACTEW)  
PROJECT END VALUE : \$155 Million  
COMPLETION : August 2012



Established in 1995 ACTEW Corporation (operating under the brand name ACTEW Water) is responsible for the supply of water and sewerage services to the ACT and surrounding regions.

Committed to ensuring long-term water security as well as prosperous regions and communities, ACTEW Water has worked on many significant projects which have improved infrastructure in the region. Some of these include the Enlarged Cotter Dam, the Lower Molonglo Secondary Treatment Augmentation, the Googong Dam Spillway upgrade and the subject of this article, the Murrumbidgee to Googong Water Transfer.

This significant project involves the transfer of water from the Murrumbidgee River through an underground pipeline to Burra Creek in NSW, which flows into Googong Reservoir. This project not only increases the effectiveness of the region's largest but most drought impacted storage facility, it also increases the diversity of water sources in the ACT region.

Furthermore, the project provides an additional supply of water into the Googong Reservoir and reduces the severity of future water restrictions. When combined with ACTEW Water's other water security projects, the savings made from avoided restrictions add up to an average of \$200

million to the regional economy over 25 years. Given the fact ACTEW own the entire infrastructure associated with the Murrumbidgee to Googong Water Transfer, their team of highly skilled and professional staff has been heavily involved in the conception, planning and construction of the transfer project. ACTEW Water's extensive responsibilities will continue into the future as the fully operational pipeline is utilised in securing water for the region.

Whilst planning the project, ACTEW Water commenced several environmental initiatives to ensure the impact of the water transfer would be less than or equal to that described in the Environmental Assessment and Environmental Impact Statement.

Some of these included the construction of a mini hydro, which is designed to recoup approximately 20 percent of the energy used by the system, the micro alignment of a pipeline to avoid impact on the endangered Swainsona recta (small purple pea) plant and the establishment of an Environment Reference Group, who review and advise ACTEW Water on the construction rehabilitation and operation of the Murrumbidgee to Googong Transfer. Furthermore, more than 100 hectares of land was set aside to offset the impact of the construction phase on 17 hectares of

**Below** The Bulk Water Alliance, which comprises ACTEW Water, John Holland, Abigroup and GHD used innovative techniques and project initiatives in delivering the project.

communication and flexible project delivery, which included constant liaisons with other onsite contractors and members of the community, the water transfer project has been carried out in a way that identified and utilised opportunities to minimise disruption to the community.

Through the construction of the Murrumbidgee to Googong Water Transfer, ACTEW has continued to demonstrate their wealth of industry expertise, as well as their highly skilled team and on-going commitment to the betterment of communities and cities through the efficient and resourceful supply of water.

ACTEW Water thanks the Bulk Water Alliance for their contribution to the planning, design and construction of the Murrumbidgee to Googong Water Transfer.

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existing vegetation communities, such as box gum and grassy woodland. ACTEW Water also conducted comprehensive environmental monitoring programs to minimise any impact on the Murrumbidgee River and to ensure the protection of Burra Creek, and will continue to do so into the future

Demonstrating their innovative techniques and project initiatives, ACTEW Water has installed Fish Egg Filtration Screens, fitted with 0.5mm apertures, within the Low Lift Pump Station, to exclude fish eggs of oriental Weatherloach and European carp from being transferred from the Murrumbidgee River into the Googong Reservoir catchment.

Throughout their involvement, one of the key challenges ACTEW Water faced was working with the community to deliver the construction of the pipeline. Not only did the pipeline easement go through seventeen private properties, there were also impacts on the general community associated with the construction of the transfer, such as road closures, increased traffic and noise.

However, the project team, were able to successfully negotiate with all landholders in order to achieve 100 percent voluntary acquisition of the easement. In addition, through a strong commitment to ongoing



**Image** Thompson Controls had a team of 15 on-site delivering the leading electrical and instrumentation installation services to the Pipeline project.



# REAL PEOPLE, REAL SOLUTIONS

Established in 1975, Thompson Controls is an Australian company that provides a diverse range of Electrical Engineering (both concept and design), Contracting and Installation, Controls Systems and Automation, Testing and Project Management services to the South East Asia and Pacific regions.

Able to service numerous industries, including industrial and construction, water, sewerage and waste water treatment, manufacturing, mining, utilities, chemical and petrochemical, Thompson Controls have worked for a range of prolific clients. Some of these include the renowned John Holland and Abigroup, Coca Cola Amatil, BP Petroleum, Kellogs Australia and ANSTO. Given their wealth of industry experience, as well as their advanced technological capabilities and comprehensive service abilities, Thompson Controls were also recently involved on the Bulk Water Alliance's Murrumbidgee to Googong River Pipeline development.

This significant development involves the transfer of water from the Murrumbidgee River through an underground pipeline to Burra Creek in NSW, which flows into Googong Reservoir. This project not only increases the effectiveness of the currently under-utilised storage facility, it also increases the diversity of water sources in the ACT region.

Furthermore, the project provides an additional supply of water into the Googong Reservoir and reduces the severity of future water restrictions. When combined with ACTEW's other Water Security Projects, the savings made from avoided restrictions add up to an average of \$200 million to the regional economy over 25 years.

Since Thompson Control's involvement, which commenced in July, 2011, a professional team of 15, including a Project Manager, site engineer, supervisors, tradesmen, apprentices and subcontractors, delivered their range of leading electrical and instrumentation installation services to the Pipeline project. These incorporated the installation of 11kV, 3.3kV and 415V switchboards, PLC cubicles, as well as all of the required fibre and copper communications.

In keeping with their renowned reputation within the industry, the committed team from Thompson Controls used a range of innovative products and techniques to ensure they completed their responsibilities to the satisfaction of the client and within the tight working timeframes. These included the use of Roxtec seals, as well as a nitrogen-filled instrument enclosure that had also been used previously throughout the process of installing purged enclosures.

Given the fact the low lift pump station, one of the crucial elements of the Pipeline, can become flooded in adverse weather conditions, the team from Thompson Controls needed to ensure all of the installed equipment was submersible and that the pump well remained free from fish eggs at all times. Using their astute design knowledge and know-how, Thompson Controls were able to successfully provide the necessary equipment and tailor-made solutions to ensure the Project's specifications and requirements were consistently met.

They also overcame the challenge of needing to generate power supply for the Gibraltar Pass pressure monitoring system, an issue they raised with GHD after noting the issues and complexity of such an installation, by using a solar powered system. As a result of their dedication to providing outstanding products and services to the Murrumbidgee to Googong Pipeline, the project has adhered to both budget and has been completed according to the restricted time schedule.

With their range of comprehensive facilities, from simple consecutive services through to total management of turnkey projects, as well as the undeniable success of their operations demonstrated through long-term relationships with all of their clients, Thompson Controls will continue to be known as one of Australia's most respected independent specialists in industrial and control projects.

*For more information contact Thompson Controls,* Glenn Botha Director, phone 02 8787 8100, mobile 0419 467 455, website [www.thompsoncontrols.com.au](http://www.thompsoncontrols.com.au)





**Image** Johnson Screens set up a system to remove organic material, trash, sand and pest fish eggs, larvae and juveniles from the water.

# JOHNSON SCREENS - FISH EGG FILTER SCREEN SYSTEMS



In 2008 Johnson Screens® participated in discussions with GHD, the Design Partners to ACTEW for the Bulk Water Alliance in Canberra for filter options for the Murrumbidgee to Googong (M2G) Pipeline. These discussions eventuated in BWA, in 2009, releasing a tender for the development of a system that would filter out river debris and pest fish coming from the Murrumbidgee River. The group required a system to remove organic material, trash, sand and pest fish eggs, larvae and juveniles from water pumped from the river and discharges into Burra Creek which flows into the Googong Reservoir and forms part of the Canberra and surrounding district water supply system.

The primary need for the filter systems was to control the spread of pest fish species, in particular, carp and Oriental Weatherloach; including their eggs, larvae and juveniles. The system was essential to ensure safe, secure and sustainable water supply for the people of the ACT region.

After reviewing the tender, engineers at Johnson Screens contacted GHD to discuss the project and propose a filter system from current technology being used in other industries. “Our goal was not only to provide the screens for the systems, but to use our expertise to deliver a solution and design a complete system to meet the unique needs of BWA,” said Stuart Strachan, Process Engineer, Johnson Screens.

Stuart, working with a team of Johnson Screens engineers, developed a prototype rotating drum screen system 1.4 metres in diameter and three metres long. This system prevents the passage of any particles greater than 0.5 millimetres and can handle a continuous flow rate of 385 litres per second. The system includes an integral, suction-type cleaning system that keeps the stainless steel screen clear of normal river debris without manual cleaning.

Representatives from the project location participated in a full-scale wet test at the Johnson Screens facility in Brisbane, Australia. The test simulated the operation of the filter assembly with organic material and trash, as well as items comparable to pest fish eggs, larva and juveniles. The system successfully performed to the BWA’s specifications.

Four of the Johnson Screens Rotary Drum Filter systems were ordered by the customer to be used in the final design, along with the prototype that was reworked to match the specifications of the other four systems.

*For more information contact Johnson Screens,* Contact: Stuart Strachan, phone +61 (7) 3867 5555, website: [www.johnsonscreens.com](http://www.johnsonscreens.com)

**Image** Pressure Systems supplied all of the required pressure relief products for the Murrumbidgee to Googong Pipeline.

# TAKING THE PRESSURE OFF



Pressure Systems Pty Ltd is a leading company that specializes in importing, assembling, testing, stocking and distributing threaded and flanged safety relief valves, bursting discs, explosion panels, flame and detonation arresters, level indicators and emergency relief vents.

With more than 40 years of management experience, as well as a new workshop with ample factory and storage area and modern offices, Pressure Systems are able to service the mining, gas, chemical, pharmaceutical, power and plant construction industries throughout Australia and New Zealand.

Committed to delivering the highest standard of after-sales repairs and maintenance to a variety of projects, Pressure Systems have been involved in a range of developments for leading manufacturers, such as the BP Blackport Townsville Upgrade and more recently, the Murrumbidgee to Googong Water Transfer Project.

This project involves the transfer of up to 100 mega litres of water per day from the Murrumbidgee River through an underground pipeline to Burra Creek in NSW. This water will then flow approximately 13 kilometres along Burra Creek into the Googong Reservoir. Given their renowned reputation for the success of their products in water management projects,

the expert team from Pressure Systems was responsible for supplying all of the required pressure relief products. This included the extensive provision of the relief valves for the piping system, all of the safety valves and bursting discs.

In order to meet the specific needs of both the client and the Murrumbidgee to Googong Water Transfer Project, the safety valves and bursting discs provided by Pressure Systems were specifically designed with Flange connections to ensure that they not only met Australian standards, but that they also delivered optimum project results.

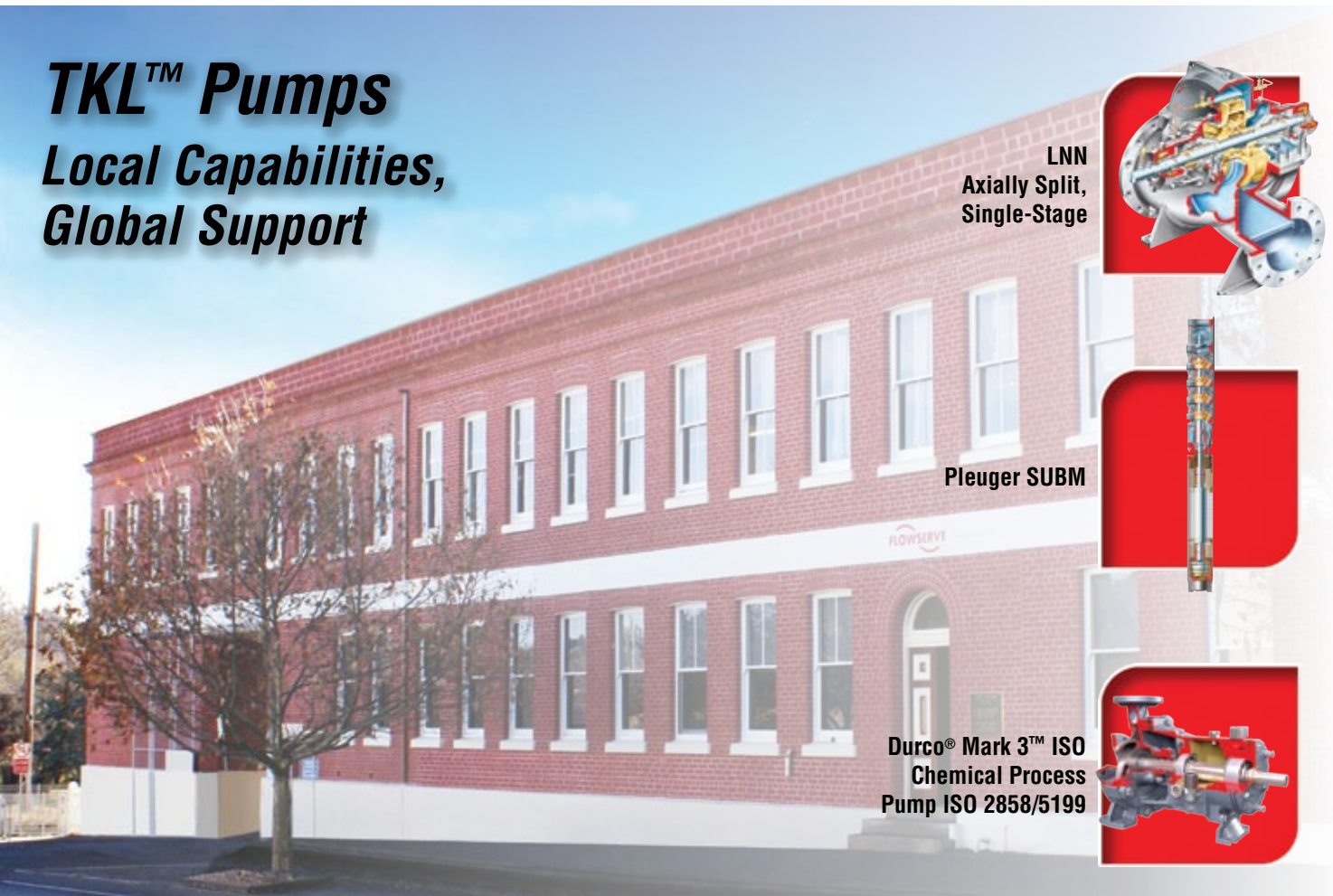
In addition, the ‘LESER VALVESTAR PROGRAM’ which was used by committed team, enabled them to efficiently and rapidly select the correct safety valve required, which minimised any potential project delays or disruptions. With quality products, services and system management, Pressure Systems, should without a doubt, be your first choice in the delivery of an extensive range of leading pressure relief products.

*For more information contact Pressure Systems,* email [enquiries@pressuresystems.com.au](mailto:enquiries@pressuresystems.com.au), Contact: Simon Anthony, Safety Valve Manufacturer: LESER GmbH Bursting Disc Manufacturer: REMBE GmbH, phone 1800 815 102

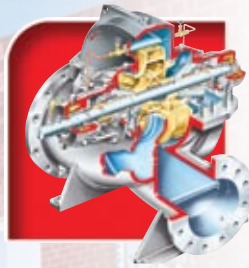


# TKL™ Pumps

## Local Capabilities, Global Support



**LNN**  
Axially Split,  
Single-Stage



**Pleuger SUBM**



**Durco® Mark 3™ ISO**  
Chemical Process  
Pump ISO 2858/5199



TKL Pumps, a product brand of distinction from the Flowserve pump portfolio, combines the world-leading technology of Flowserve with Australian manufacturing and servicing capabilities.

The TKL ECSD pumps were purchased by the Bulk Water Alliance team for the Small High Lift and the Large High Lift applications. The ECSD axially split, multistage pump, fitted with Flowserve ISC2 mechanical seals, provides high efficiency and robust product design in challenging water environments. With a proven track record, the ECSD has earned the reputation of being virtually indestructible.

Expertly designed, manufactured, packaged and performance tested in the Flowserve manufacturing facility in Castlemaine (Victoria), Australia, by a team of highly qualified engineers and staff, the ECSD pump life cycle is fully supported by Flowserve facilities throughout Australia.

Other well-known Flowserve brands available to Australian and New Zealand customers and supported by Flowserve facilities include: IDP® Pumps, Worthington® Pumps, Durco® Process Pumps, Byron Jackson® Pumps, Pleuger® Pumps, Pacific® Pumps, and Lawrence Pumps®, providing depth and breadth for successful pumping applications.

Flowserve continues to be dedicated to providing an unparalleled product range and quick responses to customers throughout Australia and New Zealand.



**ACTEW Water's ECSD pump at test bay**

**For more information about Flowserve TKL pumps, contact:**

**Pump enquiry:**

1300 Flowserve

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**Pump spare parts enquiry:**

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Murrumbidgee to Googong Pipeline, ACT