Capability Statement

PROJECT
ENGINEERING

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Providing practical aquifer injection solutions to a diverse range of clients, solving their large-scale water management problems.

About Project Engineering

Project Engineering specialises in providing hydraulic engineering solutions across a range of disciplines and industries. Our specialist knowledge is used to design and construct **Managed Aquifer Recharge** (MAR) systems utilising market leading valve technology to inject water back into aquifers.

Project Engineering has grown to be the preferred supplier of MAR systems, downhole valves and injection solutions for the Australian resource sector, aquatic centres, and municipalities.

Why Water Injection?

The conservation and management of water resources is a critical issue worldwide. With diminishing ground water levels and climate change affecting both rainfall and temperatures in many areas, every effort must be taken to manage and maintain reserves effectively.

Water management takes numerous forms including the production, consumption and conservation of quality drinking water, irrigation and industrial supply water, treated wastewater, geothermal aquifer recharge and hyper-saline water management.

One of the most effective and recognised methods of water conservation is storage below ground, through MAR (Managed Aquifer Recharge) scheme. This is due to the ability to manage large volumes of water with low levels of evaporative loss and contamination. A MAR scheme optimises this method by targeting identified aquifers, effectively replenishing heavily depleted reserves whilst providing highly cost-effective environmental advantages.

MAR Systems

Project Engineering has developed MAR systems to efficiently manage the reinjection of water into targeted aquifers. The systems make use of proven and robust proprietary technology, continually operating completely off grid in some of the harshest environments in Australia where temperatures can climb to in excess of 50°C.

Water being controlled through the systems ranges from fresh, brackish to hyper-saline. The Project Engineering equipment has maintained accurate and consistent flow rates demanded by industry best practice, with little ongoing maintenance.

All systems are preassembled, and factory tested prior to dispatch, thus allowing easy site installation without the requirement for major site works.

MAR System Design Principles

The MAR systems are all designed based on the following guiding principles:

- Stable, controlled flow to maintain a positive injection rate and minimal impact on the aquifer
- A positive pressure maintained in the system to avoid air ingress into the aquifer during injection
- Prevention of water hammer and its effects
- Maintaining a stable target flow into the aquifer, maximizing transfer.

Project Engineering MAR systems are are currently injecting up to 180Gl of water per annum for clients with salinity ranging from fresh to hyper-saline

The Project Engineering Difference

In addressing some of the challenges associated with MAR, Project Engineering has developed a reliable and efficient system to successfully manage reinjection of water into targeted aquifers. Critical to the success of this system is the proprietary injection valve and the associated control system.

The control valve is fitted to the bottom of a rising main installed in the reinjection bore. The valve is a smart and efficient design that is hydraulically controlled using pressurised water direct from headworks. The valve can operate with flow rates from 1L/s up-to 120L/s. The valve is of a simple and sturdy construction ensuring ease of installation and maintenance.

The control system offered with the units ensures the following:

- Reliable operation to maintain flow, pressure, and aquifer level
- Controlling injection bore level which is vital to prevent aquifers becoming artesian in an uncontrolled manner
- Pressure limits are maintained
- Maximize injection capacity
- Conforming to environmental regulations
- Safe shutdown in the event of a parameter being out of the desired control range.

Track Record

Project Engineering has supplied over 400 MAR injection units to the resources, geothermal and municipal sectors. The units are currently injecting up to 180Gl of water per annum for clients, with water salinity ranging from fresh to hyper-saline, and water temperatures from ambient to 65°C.

The Project Engineering MAR equipment has been the preferred technology for some of the largest MAR schemes in the Southern Hemisphere.

Other Services

In addition to our MAR equipment supply, we offer a range of other services including:

Design & Consultancy

Project Engineering has significant experience in designing equipment involved in managed aquifer recharge. This experience is backed up with in-house Engineering and Workshop capability, employing 3D modelling to provide exact visual depictions of intended designs.

With 15 years experience Project Engineering can provide invaluable practical consulting on injection bore field design, equipment design and practical sit equipment layout.

Installation & Commissioning Support

Proper installation and commissioning of the Project Engineering equipment is vital to ensure it operates as intended. In order to support this, installation and commissioning support is offered to clients by deploying knowledgeable technicians to site to supervise installations and the subsequent commissioning of the equipment. This includes the use of standard procedures developed from years of site installation and support over multiple remote sites.

Maintenance Repair & Spare Parts

The fully kitted workshop and experienced workshop technicians are able to provide repair and maintenance services to not only Project Engineering equipment but pumps, valves, and other ancillary equipment. This is typically provided directly out of the workshop where spare parts can be arranged within a moments notice.

Our technicians can repair and maintain your Project Engineering equipment to the highest standard, due to their extensive and intimate knowledge.

Project Engineering has a reputation for superior customer service and support

Inspections & Auditing

Project Engineering service technicians are able to provide site based inspections and auditing of reinjection equipment, pumps and piping systems. The service offering allows operators to understand the exact operational state of equipment and when maintenance activities would be due.

Furthermore, upgrades to existing equipment can be recommended to ensure maximum equipment utilisation.

Technical Support

After equipment commissioning support is available for technical matters pertaining to your Project Engineering equipment and operation. This includes providing support on potential repairs and the actual operation of the equipment and related bore field.

Project Engineering technical staff have significant operational knowledge of injection equipment and injection bore fields, and will be able to provide valuable support to operators.

Equipment Refurbishment

Reusing old injection equipment and pumps is made possible by Project Engineering's refurbishment services. This is done by qualified technicians bringing the equipment back to original operational standards. This could range from refurbishing and servicing old items, to the supply of new equipment in the event the old equipment is beyond repair.

Refurbishing old equipment allows for the fitment of the latest control systems and any upgraded valving that has become standard.

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VYSARN

Project Engineering is a wholly owned subsidiary of Vysarn Limited, an ASX listed public company