VICTORIAN DESALINATION PROJECT

EDITION 6 AUGUST 2011

COMMUNITY UPDATE

INSIDE THIS EDITION...

WELCOME

Of the five projects that make up the Victorian Desalination Project, marine and tunnelling works are finished and the pipeline and underground power supply are also nearing completion.

As this edition goes to print, the last few kilometres of the pipeline and power supply are being installed.

The desalination plant site is still a hive of activity with civil and structural work nearing completion on the 29 buildings that make up the plant.

On the reverse osmosis building, the 3600 tonne structural steel frame is now complete, all roof panels are in place and the first plants have started to be planted on the green roof.

Inside the building all 51 reverse osmosis racks are in place and teams of mechanical fitters and electricians are gearing up to connect complex pipework and electrical systems.

With key components of construction nearing completion, the focus of the project is shifting to testing and pre-commissioning.

This is an essential process to ensure every component of the plant is operating correctly and able to reliably produce commercial quantities of water.

Pre-commissioning has already started in some areas of the project and will continue on through until the plant is complete – a milestone which we are well on the way to achieving.

State Government Victoria

AQUASURE

THIESS

SUEZ environnement Degrémont

BRINGING IT **ALL TOGETHER**

An average day on the site of Victoria's new desalination plant sees more than 2,800 people and over 500 vehicles at work, all carefully coordinated to ensure the safety of the workforce. Let's take a closer look at how it all comes together.

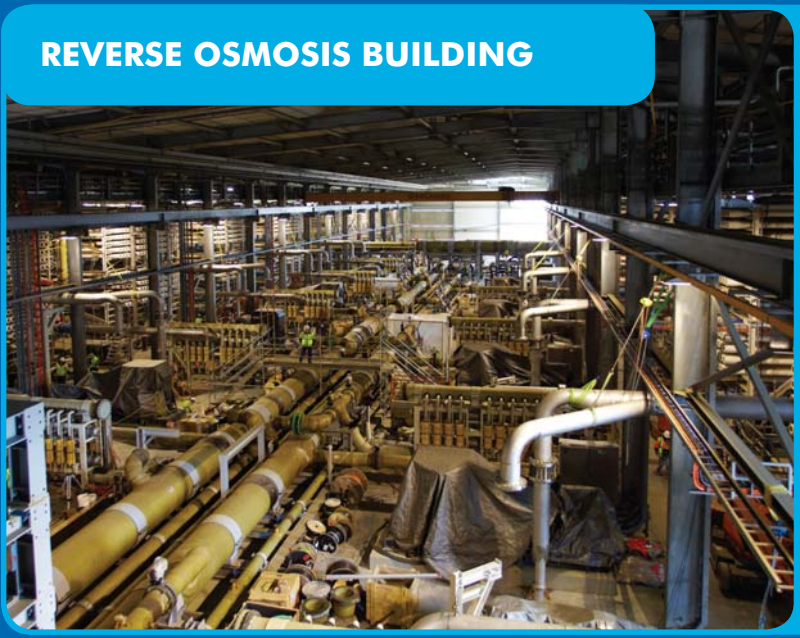
ON THE GROUND

- An average day sees around 150 truck deliveries to site, with loads ranging from small mechanical pieces right to up to 145 tonne electrical transformers – the single heaviest pieces of equipment used on site.
- Giant earthmoving and concrete trucks are also in constant use, adding up to more than 1000 truck movements per day.

ABOVE GROUND

BELOW GROUND

REVERSE OSMOSIS BUILDING



>> More than 400 people are at work inside the RO building, installing and testing mechanical and electrical components, while more than 200 people work outside to install the final roof panels and first plants for the green roof.

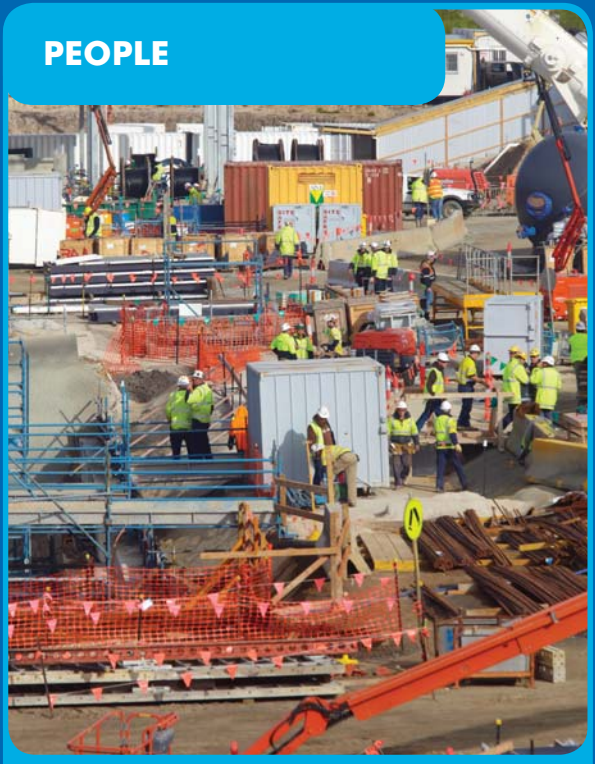
>> During peak construction periods, a staggering 76 cranes are in operation each day, including the tallest crane at 166 metres.

>> The biggest crane on site can lift more than 450 tonnes at a time, while the smallest cranes can lift around 2.9 tonnes.

>> With so many cranes at work, each lift must be carefully planned to ensure everyone's safety.

>> At the same time that major construction work is happening above ground, underground services crews are busily installing almost 36kms of piping below the ground, in trenches up to 6 metres deep.

PEOPLE

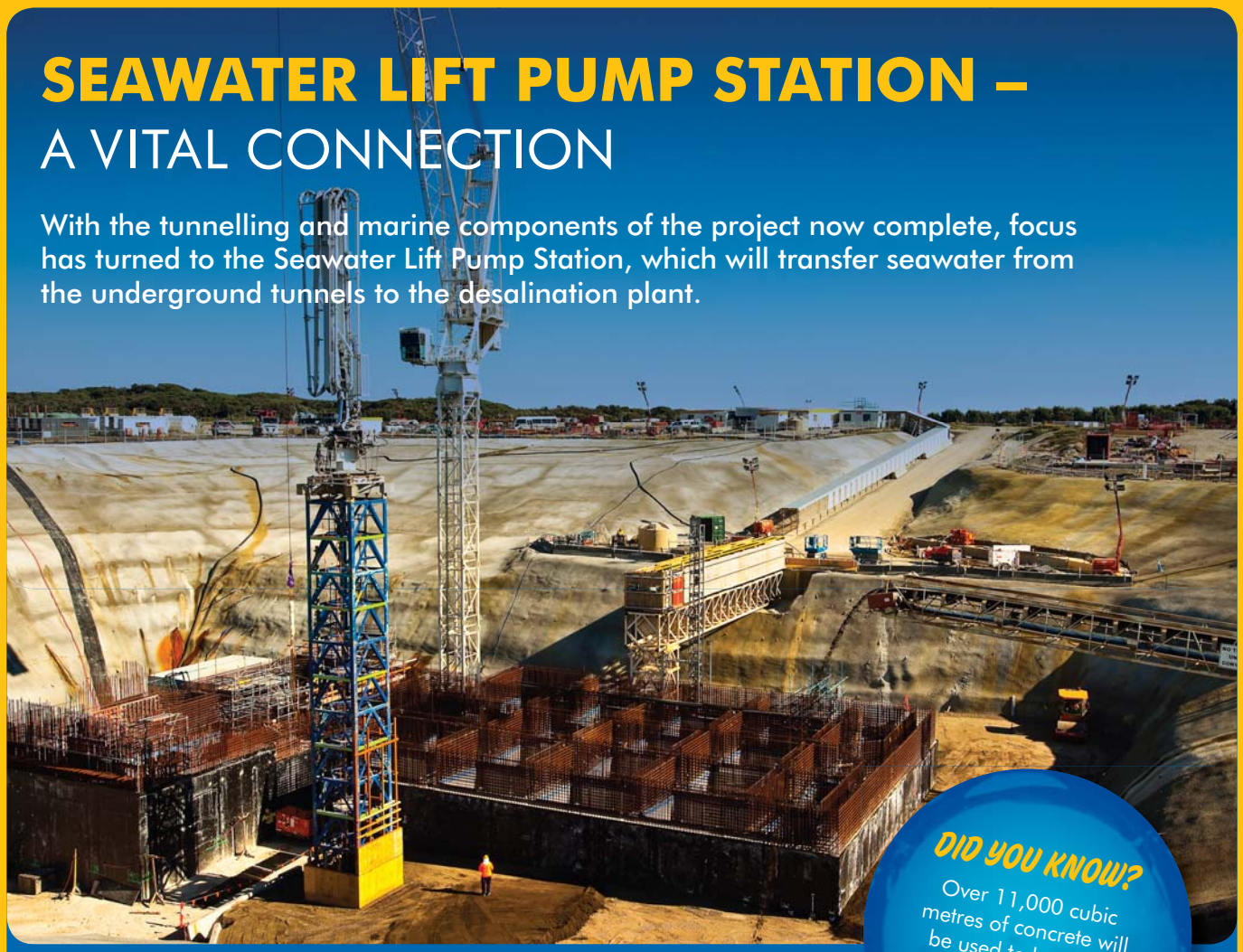


>> With more than 2800 people currently at work on the desalination plant site, each work area must be carefully coordinated to operate within the tight confines of the plant site.

>> Starting from 6am, work crews arrive in staggered shift times throughout the day, before night crews take over to work on key areas like the Seawater Lift Pump Station and RO building.

SEAWATER LIFT PUMP STATION – A VITAL CONNECTION

With the tunnelling and marine components of the project now complete, focus has turned to the Seawater Lift Pump Station, which will transfer seawater from the underground tunnels to the desalination plant.



DID YOU KNOW?

Over 11,000 cubic metres of concrete will be used to build the SWLPS, with concrete reinforced walls up to 2.5 metres thick.

After travelling along the 1.2km long intake tunnel deep underground, seawater will make a 90 degree turn through a giant elbow shaped connection pipe before entering the Seawater Lift Pump Station (SWLPS).

The building contains 16 giant pumps, capable of moving up to 1000 litres of water each per second.

It will transfer seawater from Bass Strait up and into the desalination plant site to start the first stage of the desalination process.

It will also return seawater concentrate to the outlet tunnel at the end of the desalination process.

The 20 metre high structure is being constructed in two levels, thereby avoiding the need for people to work at significant heights.

Once the first 10 metre high level of the station is completed, the surrounding area is backfilled and a false floor created, providing a stable platform from which workers can safely build the next 10 metre level.

The connecting pipe between the intake tunnel and the SWLPS will be installed in the coming weeks. Made in Geelong and measuring 4.6 metres in diameter and 22 metres long, it is the largest diameter pipe used on the entire project.

A similar connection pipe, almost twice as long, will be installed to join the outlet tunnel with the SWLPS.

Once these works are completed, the entire box cut will be backfilled with some 150,000m^3 of spoil.

At 4.6 metres diameter, the connecting pipe for the SWLPS is the largest pipe used on the project – big enough to fit a school bus inside!

COMMISSIONING **TESTS BEGIN**

With aspects of construction nearing completion, the complex process of commissioning the desalination plant is now underway.

The plant must pass an extensive range of performance and reliability tests before it can start producing and supplying commercial quantities of water.

Every component of the project – plant, marine, tunnels, transfer pipeline and underground power supply – must pass a series of pre-commissioning tests and checks before they can all come together as one.

Some of these tests are already underway at the plant site, and will also soon begin on the transfer pipeline.

Here we take a look at the pre-commissioning process for the dual media pressure filtration units, which is currently underway on the plant site.

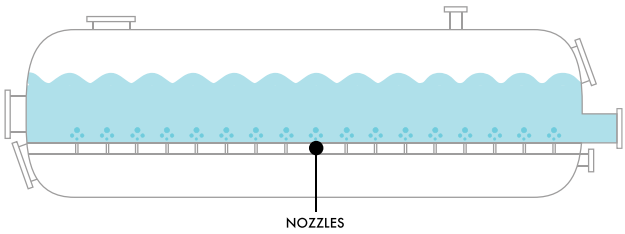
Pre-commissioning of the dual media pressure filters is currently underway.

QUALITY TESTING **IN ACTION**

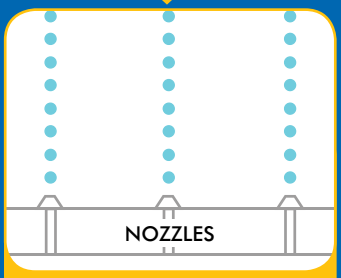
The 72 giant dual media pressure filters (DMPFs) that filter seawater before it is desalinated must be thoroughly tested for performance and reliability.

Each DMPF is fitted with thousands of nozzles which allow filtered seawater to flow out through the bottom of the DMPF and are also operated in reverse to allow cleaning of the filtration media inside each unit.

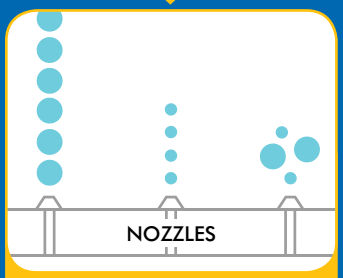
A bubble point test is used to check that the filter nozzles inside each DMPF are all uniform and operating correctly.



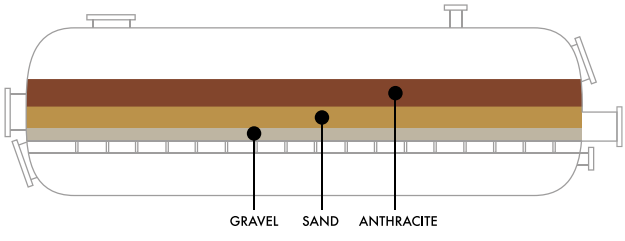
The DMPF is partly filled with water and air is then pushed through the nozzles at a designated pressure.



A level and steady stream of bubbles released from every nozzle indicates the DMPF has passed the test.



No bubbles, bubbles appearing before the designated pressure is achieved, or different sized bubbles appearing from one nozzle to the next, indicate a defect.



If the test is successful, the DMPF is then loaded with layers of filtration media comprising gravel, sand and crushed anthracite coal. Seawater is pushed through these layers under pressure, with water-borne particles snagged and trapped while filtered seawater passes through to the next stage of the desalination process.

PLANTING BEGINS ON GREEN ROOF

The first of 100,000 plants have been planted on the 'green roof' of the reverse osmosis building.

Comprising 25 different species of indigenous ground covers, tussocks and low lying shrubs, the plants have all been specifically chosen to suit the coastal conditions of the plant site.

When completed, the green roof will span a total area of 26,000m^2 – bigger than the playing surface of the MCG and the largest roof of its kind in the southern hemisphere.

The green roof is central to the architectural philosophy of the plant site, helping to integrate the plant into the landscape and minimise visual impacts.

Once completed, the green roof will be irrigated seasonally with recycled water captured from the roof run off and kept in a water storage pond on site.

COASTAL PARK TAKES SHAPE

Work to create a new 225 hectare community coastal park that will surround Victoria's new desalination plant is well underway.

Landscaping crews from Australian Ecosystems and the Bass Coast Landcare Network have already installed more than 90,000 indigenous plants, seeds for which were all collected within 40km of the plant site.

The desalination plant site has been heavily cleared over the years for mining and grazing.

The new coastal park will be one of the largest ecological restoration projects undertaken in Victoria, complete with wetlands, coastal and swampy woodlands and more than eight kilometres of walking, cycling and horse riding trails for the community to enjoy.

Millions of trees, plants and shrubs made up of 127 different indigenous species will be planted, carefully selected from Ecological Vegetation Classes suited to the local area. These species include Coast Banskia Woodland, Damp Sands Herb Rich Woodland and Swamp Scrub.

Landscaping crews start installing the first of millions of new trees, plants and shrubs to create the 225 hectare coastal park.

CAREERS TAKE OFF ON THE VICTORIAN DESALINATION PROJECT

The largest infrastructure project in our state's history, the Victorian Desalination Project, is providing a valuable career experience to more than 4,000 people involved in its delivery.

Many have gained new skills and experiences on the project that will provide a launching point for their future career development.

INDIGENOUS APPRENTICES MAKE THEIR MARK

Twelve indigenous plumbing apprentices from remote communities in the Northern Territory and Western Australia will return home as fully qualified plumbers, able to put their skills and experience to use in their home towns.

The apprentices are part of a program developed by the Plumbers Trade Employees Union and the Kimberly Aboriginal Corporation, designed to increase job and training prospects for young indigenous people in remote areas and improve sanitation standards in these communities.

"I will finish my apprenticeship on this project, then I want to head back home, help out in my community, and hopefully encourage other young blokes to get into a program like this," said third-year apprentice, Jeremiah Green.

PROJECT OPENS **UP THE WORLD**

Currently working as a commissioning engineer, Scott Hone has gained exposure to many different areas of the project since working on the tender for the Victorian Desalination Project over 2½ years ago.

"I've been able to work in all different areas like procurement, design approvals and now commissioning, which has given me a really broad range of experience for a young engineer," said Scott.

"The water industry and green energy are the way of the future, so having this experience will open up opportunities for me right across the world."

MARINE SPECIALIST **A SUCCESS**

Marine Environmental Manager Rhys Owen Roberts has relished the opportunity to work on a highly-specialised project area.

"The marine component of this project is technically complex and highly regulated.

We finished the marine works ahead of schedule and with full environmental compliance which is a great track record to take into my next project," said Rhys.

PIPELINE COUNTS
DOWN THE KILOMETRES

Pipeline crews are hard at work installing the final sections of the 84km long transfer pipeline.

Less than four kilometres of pipeline remains to be installed, including the last of 45 road crossings and 21 waterway crossings.

Completion of the pipeline is a significant milestone for the project, with around 6,200 sections of pipe laid since February last year, stretching all the way from the desalination plant site to Berwick.

This has included special crossings such as the Powlett and Bass Rivers, requiring use of specialised pipe jacking techniques and major crossings of the Bass and South Gippsland Highways.

"We are currently laying the last few kilometres of mainline pipe, leaving only a few small areas of work to be completed by special crossing crews over the coming weeks," said Pipeline Project Manager, Graeme Tait.

"The continued focus by our people on teamwork, quality, safety and minimising impacts on the environment and local communities has helped us to achieve this great outcome."

"We'd like to thank the many landholders and communities for their patience and co-operation during pipeline construction. We will continue working closely with them as we start the reinstatement process."

Pipeline crews install some of the final sections of the 84km long pipeline.

THE ROAD **TO REINSTATEMENT**

Reinstatement works on the Berwick Park pipe track.

With pipeline works nearing completion, planning is now underway for the reinstatement of local roads.

As sections of the pipeline are completed and local roads are no longer required by the project, they will be progressively reinstated to their pre-existing condition and responsibility for their maintenance handed back to the relevant local council.

A process for road reinstatement has been established and is being managed through the respective Councils, VicRoads and the project's Traffic Management Liaison Group.

The process for reinstatement will involve a joint inspection between the pipeline construction contractors and the relevant road management authority to agree on the scope of repair work required.

The work will be carried out, inspected again, and any additional repairs undertaken if necessary before being signed off.

Permanent reinstatement will take place progressively on a road-by-road basis, with works scheduled to commence in late 2011, weather permitting.

In the meantime, road maintenance crews will continue to work to identify and prioritise road maintenance works prior to their handover.

Pipeline teams prepare for the next stage of works – reinstatement.

POWERING ON

The 87km underground power supply that will provide a dedicated source of power for the plant site is also nearing completion.

More than 80km of underground cable has been laid to date, along with over 73km of conduit in the utilities corridor.

The desalination plant and transfer pipeline's operating power requirements will be 100% offset by renewable energy, ensuring the same amount of renewable energy is fed back into the grid.

Renewable energy credits will be supplied via AGL, from sources including the Oakland Hill Wind Farm in south western Victoria which is due for completion by early 2012.

SUPPORTING THE **LOCAL COMMUNITY**

Students at Wonthaggi Kindergarten enjoy new play equipment donated by Thiess Degrémont.

AquaSure and its construction contractor, Thiess Degrémont, are proud to support a range of community projects.

AquaSure is a key sponsor of the Bass Coast Community Foundation, donating $100,000 to support long-term community development projects in the region.

Thiess Degrémont's Community Partnerships Program has invested over $300,000 in the community to date across a range of educational, environmental, cultural and recreational projects and activities.

Here we take a closer look at some of the projects helping to make a difference in the local community.

NEW AMBULANCE EQUIPMENT **A LIFESAVER**

Wonthaggi paramedics test some of their newest life saving equipment.

Wonthaggi paramedics are now even better equipped to help critically ill people, thanks to a recent donation from Thiess Degrémont.

Their range of new equipment includes a ventilator and three whisperflow devices to assist patients with breathing difficulties, as well as a bone injection gun which allows paramedics to directly inject life saving medication into a patient.

"The whisperflow device provides a positive pressure air flow for people who are having difficulty breathing, helping to prevent their lungs from collapsing, while the ventilator can take over breathing for people who have been revived after a cardiac arrest or who have suffered serious head injuries and been put into a coma by paramedics," said Wonthaggi acting team manager John Drew.

"The new equipment means we can provide optimum patient care and it has already played a vital role in treating local patients."

YOUNG DRIVERS HIT **THE ROADS SAFELY**

Gaining the required 120 hours of driving practice to qualify for a drivers licence is no easy task if you don't have a car to practice in.

The Bass Coast L2P Learner Driver Program provides young or disadvantaged people with the opportunity to practice their driving skills under the supervision of volunteer driving mentors.

The recent donation of a car by Thiess Degrémont means that the dream of achieving a driver's licence is now one step closer.

Vehicles are provided by the program, which relies on a team of volunteers to provide the driving supervision.

"Having another car in our fleet means that we can provide more opportunities for young people to practice their driving under supervision, helping to build their driving skills, confidence and road safety awareness," said Stephen Johnson from the L2P program.

The L2P program's Stephen Johnson and Thiess Degrémont's Karen Lee in front of the program's new car.

WONTHAGGI POWER FOOTBALL CLUB LIGHTS UP

Players and visitors to the Wonthaggi Power Football Club will soon be able to see more clearly, with the installation of a new night lighting system around the ground.

AquaSure, Thiess Degrémont and suppliers Kentz and Olex have joined the Bass Coast Shire Council and a range of other local organisations to help make the new lighting a reality.

The permanent night lighting will enable matches to be played in the evening and also facilitate safer training during the week.

It will also allow more local community groups to use the grounds for extended periods of time and provide an improved venue for annual events like the Human Powered Vehicle race, agricultural show and various community fetes and concerts.

Support from AquaSure, Thiess Degrémont, Kentz and Olex is helping to make the club's new lighting a reality.

The Wonthaggi Power Football Club currently has more than 150 local players, ranging from junior to senior teams, and has long been an important social hub for the community.

FIRST **COMMUNITY SITE TOURS** A SUCCESS

More than 900 members of the community visited the desalination plant site in April 2011, as part of a day of Community Site Tours.

The day was an opportunity for the local community to take a first hand glimpse of construction progress to date.

Guests enjoyed a bus tour of the plant site, complete with detailed explanations of each of the different project areas under construction.

While many visitors were impressed by the scale of the project and the engineering achievements so far, some of the younger visitors were equally impressed by the sight of so many cranes and big trucks in the one place!

The day was supported by Wonthaggi Rotary, St John Ambulance and local SES services.

The Victorian Desalination Project Community Update is a quarterly publication designed to keep you informed of the latest project news and progress.

You can download copies of this newsletter from our website or pick up a copy from the Community Information Centre.

CONTACT US

Visit the Victorian Desalination Project Community Information Centre 33–35 Murray St, Wonthaggi
Opening hours: Tuesday–Friday 9.30am–4.30pm, Saturday 9am–12pm.

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