

COMMUNITY UPDATE

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WELCOME

Water security is a critical building block for Victoria's continuing prosperity.

The Victorian Desalination Project will provide water security for Melbourne, Geelong and some regional communities.

As our population grows and weather conditions change, the project will ensure our water supply is guaranteed.

Construction began just 480 days ago and is now 50% complete.

A number of important milestones have been achieved during 2010, providing a strong foundation for the project to deliver water by December 2011.

On the desalination plant site, structural steel on the reverse osmosis building and erection of the roof structure is more than 50% complete and work crews have started installing the 26,000m² green roof.

More than a quarter of the reverse osmosis racks have been installed, along with the first high pressure pumps, which will drive the desalination process.

Early landscaping works are also underway on the 225 hectare coastal park, which will become a lasting community asset.

Tunnelling crews have completed the 1.2km intake tunnel, while the 1.5km outlet tunnel is already half finished.

Out on the water, both seawater intake structures have been installed and the barge has been repositioned to enable installation of the outlet structures.

The transfer pipeline and underground power supply is forging ahead – more than 48km of the 84km transfer pipeline is in place, along with more than 42km of the 87km underground power supply.

Across the project, environmental teams continue to monitor and report on all construction activities, in line with our commitment to minimise environmental impacts and meet the highest standards of environmental performance as required under the contract for the project.

More than 3,300 people are at work across the project and an incredible six million man hours have been worked to date.

At all times, the safety of our people remains the number one priority and we are very proud of the exceptional safety record that we have achieved.

On behalf of everyone at the Victorian Desalination Project, we wish you a very safe and prosperous New Year and look forward to providing more progress updates throughout 2011.

VICTORIAN DESALINATION PROJECT IN FULL SWING

Construction activities on the Victorian Desalination Project are in full swing. Let's take a closer look at how some of the key activities on the desalination plant site have progressed.

TUNNELLING



- ✓ 1.2km seawater intake tunnel complete
- ✓ More than half of the 1.5km outlet tunnel complete
- ✓ More than 7,500 of 11,000 concrete segments installed
- ✓ More than 300,000m³ of soil excavated to create the 27-metre deep box cut

SEAWATER LIFT PUMP STATION

- ✓ More than 3000m³ of the 11,000m³ concrete structure poured
- ✓ Concrete walls up to 1 metre thick and 20 metres high

MARINE



- ✓ Jack-up barge JB115 in position
- ✓ Installation of intake structures complete
- ✓ Installation of intake risers complete
- ✓ Installation of outlet structures ready to begin
- ✓ *Read more about marine works on page 4*

PRE TREATMENT AREAS



DUAL MEDIA PRESSURE FILTERS

- ✓ All 72 Dual Media Pressure Filter (DMPF) vessels installed
- ✓ Each DMPF measures 15.1 metres by 5.2 metres
- ✓ DMPFs transported as over-dimensional convoys more than 100 metres long – the longest convoys ever seen on Victorian roads!

SCREEN & FEED AREA

- ✓ Structural steel frame and pre-cast concrete panels for buildings being installed at a rapid rate



REVERSE OSMOSIS BUILDING



- ✓ More than 1,800 tonnes of the building's 3,600 tonne structural steel frame in place
- ✓ Over half of the 26,000m² roof complete
- ✓ Installation of living green roof commenced
- ✓ More than 14 of 51 reverse osmosis racks are in place, nine metres high and five metres wide, ready to house 55,000 reverse osmosis membranes



BUILDING THE **MARINE STRUCTURES**

In the last Community Update, we reported a major milestone with the arrival of the jack-up barge and the start of marine construction work.

Two intake and two outlet structures are being installed on the seabed to draw seawater into the desalination plant and return seawater concentrate to the ocean at the end of the desalination process.

The structures will be connected to underground tunnels by a vertical shaft or riser.

All works are being carried out from JB115, the jack-up barge stationed offshore from Williamsons Beach.

In just two months, both seawater intake structures and connecting risers have been installed.

The barge has now moved to its second position to allow installation of the outlet structures, around 1.1 km from the Williamsons Beach shoreline.

Marine works are continuing throughout summer and are due to be completed in the coming months.

SEAWATER INTAKE AND OUTLET STRUCTURES



Manufactured in Burnie, Tasmania, the two seawater intake structures measure around 13 metres diameter by 7 metres high and weigh around 200 tonnes each.

A special 600 tonne crane from Victoria was used to transfer the structures from Burnie Wharf onto the offshore support vessel for delivery to the jack-up barge.

Also manufactured in Burnie, the two outlet structures are fitted with nine diffuser nozzles each, designed to ensure rapid dilution of the seawater concentrate.

The outlet structures measure 9 metres diameter by 5 metres high and weigh around 180 tonnes each.

RISERS

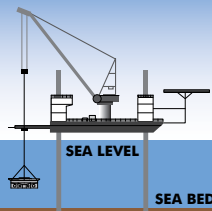
Manufactured in Geelong, the risers are approximately 30 metres long, 2.4 metres in diameter and weigh approximately 90 tonnes.



The risers are manufactured from glass reinforced plastic and steel and are lined with high-density polyethylene for durability.

HOW ARE THE MARINE STRUCTURES AND RISERS INSTALLED?

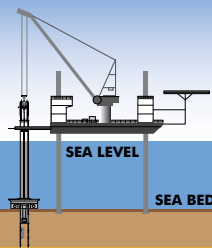
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MARINE STRUCTURE IS LOWERED INTO PLACE

The jack-up barge is set up offshore and the marine structure is lowered onto the seabed by crane.

2

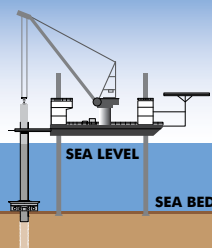


VERTICAL SHAFT IS DRILLED

A pile top rig drills a 25 metre deep shaft into the seabed, creating a space for the riser.

The pile top rig is supported by a steel tube, known as a drilling caisson, which rests on the intake/outlet structure and helps to align the drill and riser.

3



RISER IS LOWERED INTO PLACE

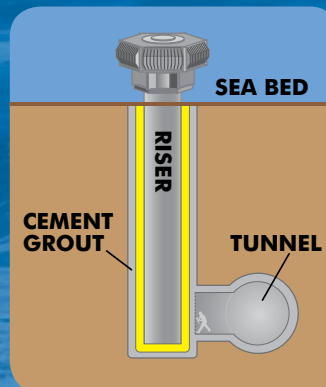
A glass reinforced plastic (GRP) riser is lowered through the drilling caisson into the shaft that has been drilled.

The riser is encased in cement grout to create a watertight structure.



HOW DO THE MARINE STRUCTURES CONNECT WITH THE UNDERGROUND TUNNELS?

The marine structures and underground tunnels involve two separate construction activities. Installation of the marine structures is carried out at sea from the jack-up barge, while the underground tunnels are excavated by tunnel boring machines approximately 15 metres below the seabed.



From the end of the tunnel, workers excavate across to meet the riser by building a short connecting tunnel known as an 'adit.'

Fluorescent grouting is used on the riser, so the tunnellers know when they have reached their target.

An expert surveying team makes sure the structures line up with great accuracy, allowing the tunnelling team to safely break through into the riser and securely connect the structures.

The tunnel, riser and adit are all encased with cement grouting and a valve system is used to prevent water from entering the structures while works are taking place.

When complete, divers open a valve on top of the riser, allowing water to flow freely through the riser and into the tunnel.

PEOPLE ON THE JACK-UP BARGE

The jack-up barge is home to a team of 60 marine and construction staff who live and work on the barge for up to two weeks at a time.

This team includes the Barge Master (Captain) and a small specialist marine crew comprising divers, engineers, drilling and geotechnical staff, plus catering staff.

Let's meet some of the faces behind the jack-up barge and take a closer look at life at sea.



Barge Master Martijn Tersteeg hails from The Netherlands and travels with JB115 as it works on different projects around the world.

His team looks after the barge's operating systems to create a stable working platform and safe living environment for all staff stationed on the barge.

"This is a complex project involving a number of heavy lift operations, so we need to make sure that our operating systems are in top condition and able to operate in all types of weather," said Martijn.

Adam Hope is part of a **specialist diving team**, which helps to prepare the seabed and marine structures for installation.

"We work with underwater cameras and also use an underwater remote camera to survey the condition of the seabed and marine structures, providing instant information to engineers on deck," said Adam.



Wonthaggi local and **Trades Assistant** Lawrence Donald carries out daily checks of generators and other mechanical equipment on the barge to make sure they are all in good working order.

"The offshore industry is really specialised and I've been trying to get into the industry for a while, so it's fantastic to be able to get a foot in the door," said Lawrence.

Environmental Officer Andrew Churcher is part of the on-board environment team, responsible for the day to day monitoring of marine construction activities, in accordance with the project's environmental management plan.

This includes regular monitoring of waste and spoil management, resource efficiency and marine pest and pathogen management.

"We also carry out underwater noise monitoring to protect divers and marine mammals during key construction activities, and we are trained as marine mammal observers so that we can identify and report any marine mammals in the area," said Andrew.



COMMUNITY COASTAL PARK GETS UNDERWAY

Work recently started on one of the most exciting aspects of the Victorian Desalination Project – a new 225 hectare community coastal park.

The coastal park will transform the land that surrounds the plant site into an ecologically sustainable landscape, including wetlands, woodland and coastal heath landscapes and new habitat for local fauna.

Trees, shrubs and ground covers will be planted during this project, rejuvenating the existing area and restoring a missing link in the coastal landscape.

The coastal park will blend in with the plant's green roof, helping to minimise the visual impact of the plant from surrounding areas.

The park will feature eight kilometres of new cycling, walking and horse riding trails that will link with existing trails in the area.

Additional facilities will include picnic shelters, public toilets, viewing decks and boardwalks as well as a bird hide within a restored wetland.

The first stage of works, involving weed removal, clearing, soil preparation and some planting, is now underway, with works being carried out progressively until the middle of 2012.

Much of the vegetation chosen will come from locally collected seeds or sourced from local nurseries. Planting will be undertaken on a seasonal basis, all of which contributes to the vegetation having the best opportunity to prosper in the coastal environment.

The end result will be a valuable asset for the community to enjoy and interact with the natural environment.



LOCAL PARTNERSHIP TO DELIVER VICTORIA'S LARGEST ECOLOGICAL RESTORATION PROJECT

Ecological restoration company Australian Ecosystems has joined forces with the Bass Coast Landcare Network to deliver the community coastal park – one of the largest ecological restoration projects of its kind ever undertaken in Victoria.

Australian Ecosystems Director Brendan Condon said the partnership would deliver a combination of world class ecological restoration techniques combined with the best local knowledge and expertise.

"The Bass Coast Landcare Network is highly regarded for its work in the region. This is a great opportunity to benefit from their local expertise and to build the capacity of the community to undertake major revegetation and restoration projects in the future," Mr Condon said.

The team will also work closely with local nurseries and other businesses to supply materials for the rehabilitation works.



PIPELINE REACHES HALF WAY MARK

Since the first sections of pipeline were laid in February, more than half of the 84km transfer pipeline has been laid.

Pipe crews reached the half way point during November, having installed more than 3,500 sections of pipe – including up to 945 metres of pipe in a single day. More than 30 road crossings and seven major waterway crossings have also been completed.

Eleven pipeline crews are working in various locations between Wonthaggi and Berwick, including:

- Two mainline crews (for long, straight runs of pipe)
- Two smaller mainline crews specialising in difficult terrain
- Three ‘special crossing’ crews (for road and river crossings)
- Three pipe jack crews
- Valve installation crew.

A final team is also working to connect the pipeline with the Melbourne Water network in Berwick.

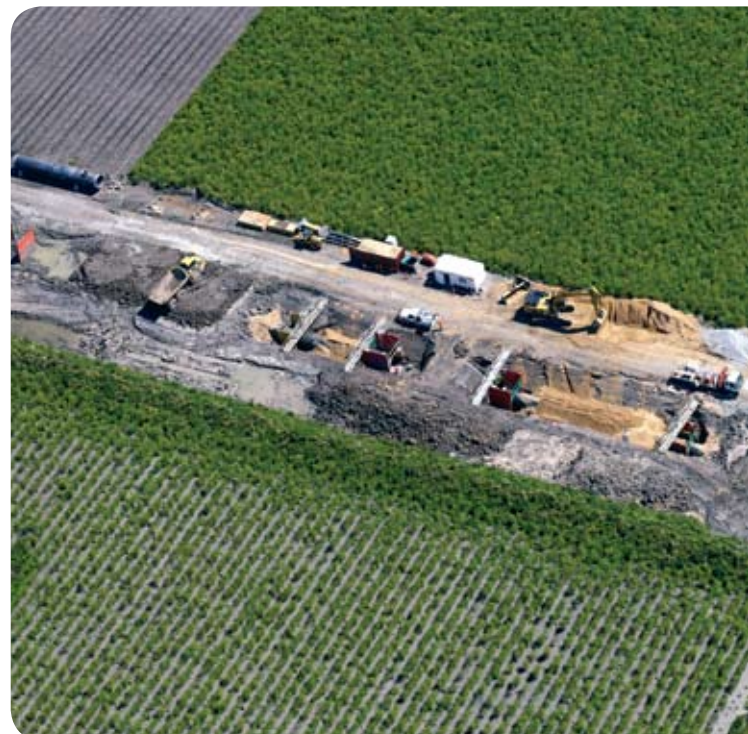
Pipeline Project Manager Graeme Tait said the achievement was particularly important given the recent winter conditions and the often challenging terrain of the pipeline corridor.

“Having multiple work crews in place means we can take advantage of the best ground conditions and concentrate our efforts there,” said Graeme.

“Our focus is on installing the pipeline as quickly and safely as possible, while continuing to work with landholders at every stage of the process to minimise disruptions to them and surrounding communities.”

Installation of the remainder of the pipeline will continue over the summer period, with the pipeline due for completion by mid-year. Rehabilitation of the easement will follow installation of the pipeline and power supply.

- >> 3,500 pipe sections laid
- >> 7,500 welds completed
- >> 31 of 36 road crossings completed
- >> 7 of 16 waterway crossings completed
- >> Day to day liaison with around 125 directly affected and 400 indirectly affected landowners/occupiers





Laying pipe through the residential areas of Berwick



The pipeline passes through farming and agricultural areas as it makes its way to the desalination plant site

ALL PUMPED UP

Moving up to 150 billion litres of water a year from the desalination plant and along the 84km transfer pipeline is no easy task.



A booster pump station located in Cardinia will play a key role in moving water along the pipeline and ensuring that sufficient pressure is maintained throughout the entire journey.

The booster pump station contains two main pumps that can pump over 5000 litres of water per second – enough to fill an Olympic size swimming pool in around eight minutes.

At around 6 metres long, 2 metres wide and 2.5 metres high, the pumps are among the largest used in the water industry.

A number of surge vessels located in the booster pump station will also help control any sudden changes in the pressure of water moving through the pipeline.

The booster pump station forms part of a network of more than 400 pumps of varying capacity and pressure that will be installed throughout the desalination project.

These range from pumps that are capable of moving large volumes of water at high pressure, to others that move smaller amounts of water but at a much higher pressure, like those used in the reverse osmosis process.

All will play a vital role in transferring water from the ocean, through the desalination process, to the transfer pipeline and finally, to water users.

DID YOU KNOW?

- >> Water is heavy to move. The desalination plant and transfer pipeline have been designed to reduce the energy required to lift the water and move it through the desalination process.

START SAFE, STAY SAFE, HOME SAFE

With more than 3,300 people currently at work on the Victorian Desalination Project, making sure everyone returns home in the same condition they came to work is the project's number one priority.

Comprehensive safety induction training is carried out for every person working or visiting the project, to ensure the highest standards of personal safety are maintained.

All construction staff take part in daily pre-start meetings and regular toolbox talks to reinforce safe work practices, and a job safety environment analysis is completed before any construction activity can be carried out.

Construction activities on the Victorian Desalination Project include underground tunnelling works, general construction, offshore marine work and working at heights to name a just a few. Specialised safety training is also carried out for personnel working in high risk activities.

Safety training forms part of an overall approach to risk management on the project which aims to identify, review and control risks in the workplace to prevent injuries from occurring.

A dedicated safety team conducts regular reviews of safety performance and implements ways to enhance safety across all areas of the project. WorkSafe Victoria also provides guidance and support to achieve the project's goal of zero harm.



"The sheer volume of staff at work on the project coupled with the complex and diverse nature of the work activities undertaken means that safety has to be at the forefront of everything we do," said Thiess Degrémont Safety Manager, Max Crowther.

"Our motto on this project is 'Start Safe, Stay Safe, Home Safe' – we want to return people home to their families each day in the same condition they came to work, no exceptions!

"This means that not only do we have to make sure we have all the right systems and processes in place, but we also rely on everyone involved with the project to be constantly on the lookout for ways to enhance safety and to not be complacent about anything that we do."



DID YOU KNOW?

An Electrical Test Tag Crew is just one group helping to make sure everyone on the project stays safe.

The 10 member team regularly tests every single electrical appliance used on the project – ranging from laptop chargers to heavy duty construction equipment – to make sure each item is in a safe working order.

Appliances are routinely tested every three months, with some items tested more frequently depending on their use – that adds up to over 6,000 electrical appliances a quarter!

VOLUNTEERS LEND A HAND TO STATE COAL MINE

The Bass Coast is the new home for many design and construction staff and their families, many of whom are also taking the opportunity to get involved in the life of their local community.



James Winters, pipeline environmental officer, is one staff member lending a hand to preserve an important piece of local history – the State Coal Mine in Wonthaggi.

Since moving from Mansfield to the Bass Coast a year ago, James has joined a loyal group of volunteers who meet each week to restore and upgrade facilities at the mine, with the aim of being able to provide underground tours of the mine to visitors in future.

The coal mine was active from 1909 to 1968, providing valuable supplies of black coal to power Victoria's railway network. It now provides a rich introduction to the industrial and social heritage of Wonthaggi.

"It's a great feeling knowing that you're helping to keep the history of the mine alive for future generations," said James.

"Being a volunteer has also been a fantastic way to meet new people in the area – I really enjoy the camaraderie and being able to work alongside people, including some of the original miners, who are so passionate about this place."

For more information on the State Coal Mine visit www.parkweb.vic.gov.au

Above: Pipeline workers Anthony Jones and James Winters (at right) are part of a dedicated group of volunteers working to restore the State Coal Mine in Wonthaggi.

BASS COAST BIKE EDUCATION PROGRAM OFF AND RACING

Primary school students throughout the Bass Coast are off and racing on a new fleet of bicycles, thanks to the Wonthaggi Blue Light Bike Education Program.



Students from Wonthaggi Primary School take their new bicycles for a spin.

The program aims to introduce students to the recreational benefits of cycling and to encourage greater safety and road awareness among participants.

A recent donation by design and construction contractor Thiess Degremont has allowed the expansion of the bicycle fleet from 12 to 24 – meaning even more students can enjoy the program in future.

"The program is a fabulous way to teach bike riding skills and road safety to children and the new bicycle fleet will greatly enhance our ability to service this program in our local area", said the program's Kerri Horrocks.

WORKERS TURN PINK FOR BREAST CANCER



Thies Degrémont workers on the Victorian Desalination Project have raised more than \$50,000 for the McGrath Foundation – helping to place more Breast Care Nurses in communities across Australia and to increase breast awareness in young women.

During October, workers on the desalination plant site exchanged their regular construction hard hats for hot pink hard hats for the day.

“Just like we want to send our people home safe and well from work, we want them to go home to a family that’s safe and well too,” said Thies Degrémont Safety Manager, Max Crowther.

“Whether it’s our mothers, sisters, wives, daughters, girlfriends or colleagues, wearing a pink hard hat is a way of showing how much we value the women in our lives.”

To make a donation to the McGrath Foundation visit www.mcgrathfoundation.com.au

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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