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CERTIFIED TELEMATICS BECOMES PART OF WORLD'S BEST PRACTICE IN WASTE MANAGEMENT – VEOLIA ENVIRONMENTAL SERVICES AUSTRALIA

Veolia delivers improvements to waste management in New South Wales

INTRODUCING VEOLIA ENVIRONMENTAL SERVICES

Veolia Environmental Services Australia (VES) is part of the French based global entity, Veolia Environment (VE) which is a world leader in environmental services. With operations on every continent and more than 317,000 employees, VE provides customised solutions to meet the needs on municipal and industrial customers in three complementary segments: water, environmental services, and energy services.

OVERVIEW ON AUSTRALIAN OPERATIONS

With 100 locations nationally, VES designs and delivers integrated services to a vast range of customers across commercial, municipal, and industrial sectors. VES aims to add value to our customers by:

- integrating recycling and resource recovery to reduce environmental emissions and increase production yields
- integrating refractory management, industrial cleaning, painting facilities and civil maintenance, as well as other specialised services for heavy industry
- integrating community education, training and safety procedures to minimise environmental and social impact.

VES employs close to 3,000 employees across Australia.

A SOLUTION FOR SYDNEY'S RESIDUAL WASTE DISPOSAL REQUIREMENTS

The Woodlawn Eco-Precinct is located 250 kms south of Sydney, near Goulburn in New South Wales.

The precinct, which opened in 2004, was previously a copper, lead and zinc open-cut mine. The void left from mining is now used as an in-situ bioreactor[1].

The Woodlawn Eco-Precinct which is fast becoming one of Australia's largest eco-precincts consists of:

- Woodlawn Bioreactor and Bio Energy Facility
- Woodlawn Organic Processing Facility
- Woodlawn AquaPonics project
- Pylara Conservation Reserve and Infigen wind farm.

In October 2008, the then known as Department of Planning, commissioned the Wright Corporate Strategy Report, which indicated that Sydney's current waste management infrastructure could not sustain the current and projected rate of waste generation.

The report also identified that there are some 40 million tonnes of available landfill capacity to serve the Sydney basin, including 32 million tonnes at Woodlawn. At a rate of two million tonnes per annum, this implies 20 years of theoretical capacity at the Woodlawn facility.

The Woodlawn Eco-Precinct and bioreactor is therefore set to play an integral part in providing a long term solution for managing the waste in New South Wales.

WORLD'S BEST- PRACTICE WASTE LOGISTICS

The Woodlawn Eco-Precinct offers a significant alternative for the resource recovery and disposal of putrescible[2] waste in New South Wales by utilising proven technologies that are used by VES counterparts around the world. The bioreactor facility

[1] Bioreactors are purpose built facilities designed to accelerate the decomposition process of residual waste and maximise the capture of biogas yields for conversion into green electricity.

[2] The NSW Department of Environment and Climate Change has classified the following as general solid or putrescible waste: household waste that contains putrescible organics; waste from litter bins collected by local councils; manure and night soil; disposable nappies, incontinence pads or sanitary napkins; food waste; animal waste; grit or screenings from sewage treatment systems that have been dewatered so that the grit or screenings do not contain free liquids; and any mixture of the wastes referred to above.

extracts green electricity from what would otherwise be waste material.

With the Woodlawn bioreactor currently accepting around 40% of Sydney's putrescible waste, it is a primary example of best practice waste technology. Since 2004, over 3.5 million tonnes of waste has been accepted and used to generate green energy.

The Woodlawn facility houses the world's largest bioreactor and is one of the most efficient and cleanest examples of bioreactor technology in the world.

TRANSPORTING SYDNEY'S WASTE

VES's Clyde transfer terminal receives domestic waste from the Sydney metropolitan region by conventional waste vehicles which collect waste from the kerbside. This waste is then compacted and loaded into 40-foot containers, which conform with International Standards Organisation (ISO) dimensions.

'This transfer terminal incorporates dust suppression, noise abatement and three-tier odour management safeguards to minimise environmental impact,' said Henry Gundry, VES's Environment and Operations Manager.

'VES contracts Pacific National to move domestic waste by rail from Clyde to the Crisps Creek intermodal facility, which is located approximately 5km south west of Tarago. Each train carries 58 fully laden containers which depart from Clyde at 1am daily and return to Clyde each afternoon with the empty containers for repacking.'

'Containers are then moved by road on a 10km journey from the railhead at Crisps Creek to the bioreactor which is adjacent to the old mine site and located within the Woodlawn Eco Precinct.'

'We subcontract this task to a local company, operating a fleet of seven trucks. Each truck completes eight or nine return journeys per day, picking up full containers at the intermodal terminal, discharging the waste at the old mine site, then returning the empty container for transport-by-rail back to Clyde.'

'The sub-contractor supplies the prime movers. VES supplies the trailers,' said Mr Gundry.

'Even today, this is the only example in Australia of waste products being moved by rail. This has been achieved by long-term vision and significant investment for almost two decades,' Mr Gundry said of VES's strategic vision.'

'Each container carries the equivalent of three standard waste trucks of domestic waste. By moving this waste to Woodlawn by rail rather than road, VES has abated the carbon emissions of approximately 20,000 cars per year,' Mr Gundry said.

SECURING APPROVAL TO OPERATE AT HIGHER MASS LIMITS (HML)

Mr Gundry said that VES obtained approval to operate Performance Based Standards (PBS) approved quad axle vehicles at Higher Mass Limits (HML) from the railhead to the bioreactor through the Intelligent Access Program (IAP), enabling economic, safety and environmental benefits to be realised.

The IAP is a national technical and regulatory framework program administered by Transport Certification Australia (TCA), and forms part of the *TCA National Telematics Framework*.

The IAP uses the Global Navigation Satellite System (GNSS) to manage heavy vehicle access to the road network, giving road managers the strongest assurances that 'the right truck is on the right road.'

'Trading off the cost of the IAP with these benefits showed moving to HML stacked up in terms of our bottom line,' Mr Gundry said.

'Because we were able to achieve payload gains in the order of seven tonnes per load, we were able to reduce by 5,000 vehicle trips per annum. It also reinforced our reputation as a responsible corporate citizen by demonstrating leadership as an environmentally-aware transport operator,' Mr Gundry said.

WORKING WITH GOVERNMENT TO SECURE QUAD AXLE APPROVAL

Mr Gundry said, 'We commenced our investigations in May 2010. The processed metrics were positive and justified that these vehicles would meet requirements set by critical stakeholders.'

'ARRB Group was commissioned by Goulburn-Mulwaree Council to conduct an assessment to determine the strength of bridges, culverts and pavements on the route from the intermodal terminal to the bioreactor. This was undertaken in order to meet the requirements of the then Roads and Traffic Authority (RTA).'

'The work was undertaken by the Council in partnership with VES. This recognised that any benefit that would arise from an access approval would flow primarily to VES and its sub-contractor, however other transport operators may benefit from future access.'

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DESIGNING PURPOSE BUILT TRAILERS

Mr Gundry said that VES commissioned Maxitrans to design purpose-built trailers.

'Maxitrans was able to provide VES with a robust solution. We needed a trailer design that would give us an appreciable payload increase whilst complementing our sub-contractor's prime mover fleet. This fleet comprised Freightliner prime movers, each fitted with front underrun protection and run on a Euro 5 engine.'

'Maxitrans was able to develop a lightweight quad-axle skel trailer which enabled VES to increase payload from 27.5 tonnes per load under HML, to 31.5 tonnes per load. This prime mover-trailer combination had to undergo the extensive battery of tests required to meet the exacting requirements set by the National Transport Commission (NTC) for a PBS approved vehicle and to secure approval for the trailer design.'

'Increasing the payload per container was easy. This was because the original containers were modified through the fitment of a false wall which limited the cubic area occupied by the compacted waste. This wall was originally included to ensure total payload and its distribution within the container to comply with tri-axle group and gross mass limits. All we had to do was remove it to gain the additional payload we wanted using the quad axle grouping.'

'VES secured approval to run the quad-axle units on 1 September 2011,' said Mr Gundry.

As a condition of planning approval, VES was asked to contribute to road upgrading. Under the consent conditions, VES is also required to contribute to the upkeep of local roads used by these quad units.

Mr Gundry praised all levels of government for their advice and support.

'The former RTA and Goulburn-Mulwaree Council worked very well in collaboration with VES,' Mr Gundry said.

SAFETY, ECONOMIC AND ENVIRONMENTAL ADVANTAGES

Mr Gundry said that a four tonne increase in payload might not sound much, but with a task as large as this the savings are quite substantial.

'The payload on the quad has increased by a little over 14.5 per cent when compared to the triaxle HML trailer we previously used. Given we move 58 40-foot containers per day, that equates to an additional 232 tonnes of domestic waste moved per day by both road and rail, over an estimated 250 km one-way trip.'

'By implementing the quad-axle project, we have removed around 5,000 truck movements from the road network each year.'

'The savings are truly enormous,' Mr Gundry said.

WORKING WITH TCA CERTIFIED SERVICE PROVIDERS

Mr Gundry said that VES chose TCA Certified Service Provider Transtech Driven to provide IAP monitoring services for its sub-contractor's prime movers.

'We found Transtech Driven was able to provide an adaptable solution. As our needs have changed, Transtech Driven has been on hand to provide the technical advice and support we needed to ensure we met our obligations under the IAP.'

THE FUTURE

Mr Gundry said that VES has now been given approval to run an additional train per day.

'This will enable us to double the volume of domestic waste we can process through the bioreactor. It will require extensive planning to ensure smooth implementation of what will be a significant increase in operational capability.'

'However, VES expects it will take some three to four years to obtain the necessary regulatory approvals, engage with the local community and finalise any capital works associated with the doubling of our capacity to process this waste. When this occurs it will contribute significantly to the efficient, environmentally responsible disposal of domestic waste outside the Sydney basin.'

THE ENVIRONMENTAL PAYBACK

Mr Gundry said that VES continues to be a leader in delivering innovative waste infrastructure which could truly turn waste into a resource.

'VES proposes to build a facility that will produce compost from municipal waste, which would be used to remediate 3,000 hectares of degraded land on the previous tailings dump adjacent to the old mine.'

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'Waste heat from the Bio Energy Facility provides an optimum environment to grow silver perch. The waste is then filtered through a hydroponics process which forms nutrients which are absorbed by a range of vegetable crops in a purpose built facility.

'To date, three million tonnes of domestic waste have been moved to the old mine site and then processed to generate enough green electricity to supply approximately 2,400 homes.'

'VES will be well positioned to complete the long term task of filling this site and generating electricity for supply to the market.'

'When the pit is full, it will contain between 30 million and 35 million tonnes of waste; enough to supply green electricity to 25,000 households,' Mr Gundry said.

THE BENEFITS OF THE IAP

Mr Gundry said that the IAP has been integral to the success of what was an ambitious project.

'VES is always interested in investigating and, where appropriate, adopting leading edge technologies which contribute to a safer, more environmentally responsible and more efficient business operation.'

'The core of our business is waste management. In the 21st century, this increasingly means investing in renewable energy, remediation and other areas where there are clear triple bottom line benefits.'

'VES intends to remain at the leading edge of change as a responsible, compliant, environmentally aware global business because we believe that maximises our chances of ongoing business viability.'

'The IAP is but one of the many leading edge technologies which we utilise to enable us to meet these corporate goals and embed our corporate values. It is a technology that provides complete assurance for our business.'

'As we embark on our future growth plans, the benefits which we have accrued to date through the IAP will grow and will reinforce its benefits as facilitator of the adoption of a leading edge technology.'

'Without the IAP, we would not be able to generate savings in either our trucking operations or in the rail operation undertaken by Pacific National,' Mr Gundry said.

AT A GLANCE:

- With the Woodlawn bioreactor currently accepting around 40% of Sydney's putrescible waste, it is a primary example of best practice waste technology.
- VES obtained approval to operate Performance Based Standards (PBS) approved quad axle vehicles at Higher Mass Limits (HML) from the railhead to the bioreactor through the Intelligent Access Program (IAP).
- VES was asked to contribute to road upgrading and is also required to contribute to the upkeep of local roads used by quad units.
- The IAP helped generate substantial savings for trucking and rail operations.
- VES was eager to adopt a leading edge technology that contributes to a safer and more environmentally responsible business strategy
- IAP Service Provider Transtech Driven provided technical advice and support ensuring VES met their obligations under the IAP.

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