

# Lantec Tower Packing Engineered to Accomodate Higher Scrubbing Velocities

Perth, Australia - Beenyup WWTP, Two Stage Odor Control Wet Scrubbing System

Q-PAC® Tower Packing Yields 99%+ Efficiency, Low ΔP, Minimal Tower Size

## 1<sup>st</sup> Stage: NH<sub>3</sub> – Ammonia Scrubbing

Air Flow =	16,300 Nm <sup>3</sup> /hr (10,333 scfm)
Peak Inlet Concentration =	95 ppm <sub>v</sub>
Tower Diameter =	1500 mm (4.92 ft)
Superficial Gas Velocity =	2.8 m/s (544 fpm)
Packing =	Q-PAC in polypropylene
Packed Depth =	1250 mm (4.10 ft)
Scrubbing Liquor =	water with H <sub>2</sub> SO <sub>4</sub> added
Recirculation Rate =	366 liter/min (97 gpm)
Liquid Flux =	12.5 m <sup>3</sup> /m <sup>2</sup> -h (5.1 gpm/ft <sup>2</sup> )
Q-PAC Pressure Drop =	1.5 mbar (0.6 in WC)
<b>Scrubbing Efficiency =</b>	<b>99%+</b>



## 2<sup>nd</sup> Stage: H<sub>2</sub>S – Hydrogen Sulfide Scrubbing

Air Flow* =	16,300 Nm <sup>3</sup> /hr (10,333 scfm)
Peak Inlet Concentration =	62 ppm <sub>v</sub>
Tower Diameter =	1500 mm (4.92 ft)
Superficial Gas Velocity =	2.8 m/s (544 fpm)
Packing =	Q-PAC in polypropylene
Packed Depth =	2500 mm (8.2 ft)
Scrubbing Liquor =	water with NaOCl and NaOH
Recirculation Rate =	937 liter/min (248 gpm)
Liquid Flux =	31.9 m <sup>3</sup> /m <sup>2</sup> -h (13 gpm/ft <sup>2</sup> )
Q-PAC Pressure Drop =	5.0 mbar (2 in WC)
<b>Scrubbing Efficiency =</b>	<b>99%+</b>

### Scrubber Residence Time for 99% H<sub>2</sub>S Removal

$$\left( \frac{8.2 \text{ ft}}{544 \text{ ft/min}} \right) \left( \frac{60 \text{ sec}}{\text{min}} \right) = 0.9 \text{ sec}$$



Photos and data supplied by Mr. Leonard Noel, Majortech Pty, Ltd.  
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### \* Project Summation

16,300 Nm<sup>3</sup>/hr is the air flow that passes the two scrubbers in series when one train is operating. If both trains operate simultaneously, the total air flow is 18,300 Nm<sup>3</sup>/hr (11,600 scfm), or 9,150 Nm<sup>3</sup>/hr (5,800 scfm) per train.

Total System Head Loss:	1618 Pa, 6.5 in WC (at 16,300 Nm <sup>3</sup> /hr)
Scrubbing Efficiency:	99%+ removal confirmed by independent laboratory
Total Project Cost:	1.5 million Australian \$ (\$1,093,000 US)
Project Location:	Perth, Western Australia
Type of Location:	Upscale neighborhood
Nearest Neighbor:	30 m (100 ft)