

Polar Bears' air now a little more fragrant

One of Australia's leading marine parks has had a long-running problem in their polar bear enclosure with odour and excess organic (mould and bacteria) build-up in the air conditioning duct work.

The cold and damp environment combined with such large animals provided a unique problem for the air conditioning firm who has held the service contract for the past three-and-a-half years.

The odours from the bears combined with air borne organics and Volatile Organic Compounds (VOC) from harsh cleaning agents were constantly being recycled by the A/C units operating 24/7 to maintain a temperature of 16 degrees Celsius throughout the enclosure.

With this high organic load passing through the two roof mounted package A/C units combined with high levels of moisture in the air, mould and bacterial growth was unchecked throughout the duct work.

Subsequently, recycled air was passing through blinded filters carrying mould spores and pollutants into the conditioned space creating a less than ideal environment for workers and polar bears alike.

Staff working on four-day rotating shifts had complained of respiratory ailments during their time inside the enclosure.

Ecologic International learned of the problems the contractor had been facing through a local wholesaler and identified the problem as one that could be resolved using the Guardian Air in-duct air purification unit.

As the bears were confined to their indoor enclosures at night, treatment had to take into consideration the sensitivity of the animals.

A meeting between Ecologic International's managing director Tony Julian and the A/C contractor's service manager was arranged on site to perform an evaluation of the enclosure and A/C system.

Air samples were taken from the site to identify any abnormal organic or bacterial growth and also to compare with post installation samples.

The following goals were decided upon:



ABOVE: Taking the plunge...
The Polar Bear enclosure now smells a whole lot better.
RIGHT: Fragrant...Guardian Air technology was chosen to have the Polar Bears coming up smelling rosy at an Australian marine park.

- To reduce odour associated with the polar bears and food preparation in order to improve the working environment for staff.
- To reduce organic build up (bacteria, mould and mildew) in the A/C duct work. This would provide clean, safe air for both staff and bears alike while helping to curb excessive maintenance and filter changing.

Ecologic Intl in consultation with USA-based manufacturer RGF Environmental Group Inc. sized the application according to the A/C fan flow rates and volume of conditioned space.

Correctly sizing the installation was important to attain desired results without breaking through and creating unused oxidising elements.

It was decided that a Guardian Air model: 212 High Output (GA 212 HO) would be suitable for installation in each A/C unit to attain desired goals. Although being that the organic loads were unusually high it was decided to install the GA 212 HO in parallel with a larger GA 357 HO.

Each unit could be operated individually, alternately or at the same time to attain desired goals.

With sizing completed the Ecologic units were ready



for installation. Two service technicians were supplied by the contractor and the project was overseen by Ecologic International.

Due to the units needing to be located on the supply side of the fan in the roof mounted A/C units, waterproof enclosures were fabricated to house the GA units. The enclosures were attached to the plenum and 60mm holes for GA cell penetration were cut.

The GA cells were inserted into the plenum and fixed. 12V power supplies were located inside the enclosure and power run to 2 x double GPOs, fitted previously by the contractor.

Julian said the enclosures should soon smell a whole lot better and staff should see reductions in respiratory effects.

"We are expecting to see reductions in the overall bacteria and mould levels, both having a positive effect on the odour of the bear enclosure," he said.

"Loads are extremely high in this situation due to the daily

food preparation, continual feeding of the bears and off-gassing from harsh cleaning agents, but we expect to see the associated odours abate fairly quickly."

Based on independent testing it is expected that mould, bacteria and other organic growth will be reduced by up to 95 per cent.

"This will reduce the respiratory risks and provide workers and bears with clean, fresh odour free air.

"Worker productivity, and job satisfaction will increase."

The RGF Guardian air has been independently tested and validated by a number of sources with results ranging from 35 per cent to 99.9 per cent reductions in mould, bacteria and virus.

The Chinese government tested, approved and installed hundreds of units to aid in controlling the SARS epidemic.

Tests are now underway on surface born staph virus and results have been gathered on the Norwalk virus (cruise ship virus) with 99.9 per cent reductions.