

CASE STUDY—Wastewater Treatment:

Marion County, Florida

BACKGROUND:

Following the close of bid in spring 2007, the Marion County, Florida Wastewater Treatment Plant Expansion went over budget. All progress was halted on the project while additional funding options were explored.

In an effort to reduce the overall project cost, Universal Blower Pac was approached to evaluate if it would be possible to offer a value-engineered alternative to the six specified multistage centrifugal blowers that did not sacrifice any of the specified performance.



CHALLENGES:

- Engineer a blower system customized around the client's process needs while eliminating extraneous features not benefiting the process.
- Equipment to run at or below 85 dBA at three feet in a free field environment
- Low Required Break Horsepower:

Process One	Process Two
1712 ACFM @ 8 PSIG	1227 ACFM @ 8 PSIG
88.6 BHP	62 BHP

SOLUTION:

UBP proposed a system comprised of six positive displacement blower packages utilizing Acousti-Pac partial enclosures. This attenuation solution focused solely on the loudest component of the system, the bare blower.

These six packages were designed to have an equivalent power draw to the multistage centrifugal blowers at the main design point, with over a 10% reduction in total break horsepower at the specified surge point. The three larger packages ran at 82 dBA while the three smaller ran at 79 dBA, both at three feet in a free field environment.

Additionally, surge conditions are not a concern with this technology. Unlike centrifugal blowers, positive displacement blowers do not generate any internal pressure, and work instead by overcoming line pressure. Due to this fact, UBP was able to significantly simplify the process controls that were originally specified.

RESULT:

- The total cost for the process blowers was reduced by over 25% versus the specified centrifugal blowers.
- All specified performance points were met.
- Marion County was able to move forward with their system expansion project in early 2008 without any major funding adjustments.