

Equipment: EVERLAST™ Lift Station with X-PELLER® Impeller

Application: Prison Facility



When a correctional facility underwent a capacity expansion, changes to its problematic submersible sewage pumping station coincided, resulting in a new operator-safe approach to combatting the ills of prison sewage pump clogs.

The maximum, medium and minimum-security prison originally opened as a 500-bed facility. It was recently expanded to add 440 more beds along with a new state-of-the-art environmental facility and recycling plant to manage waste generated by up to 1,000 inmates. A seven-mile sewer line alongside the existing sewer system was also added to handle the increased flows.

The original, privately managed sewage pumping station that served the prison was a submersible, located near the prison's original perimeter. It now resides within a facilities service area that links the expansion with the original prison facility. A private facility management services company that serves many other prisons operates and maintains the sewage pump station.

Prison sewage often contains extra trash, towels, and rags that enter the sewerage network and cause pump clogging problems. Detainees may flush all sorts of materials that can ultimately lead to build-up in the system and pumps. According to the operations company staff, the original submersible pump station reached a point when the pumps were clogging as often as every two days.

It became a major time-consuming nuisance and a safety issue because the submersible pumps reside in a designated confined space wet well. Routine operation and maintenance items like pulling a pump to empty a clog or change a seal required unsafe confined space entry unless coupled with the inconvenient use of safety gear and safety harnesses, air monitoring equipment

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Depicted above is a clogged submersible pump typical of the issue experienced in the original prison submersible pumping station confined space wet well. The operations staff was faced with removing the pump for clog removal every two days. Unfortunately it had become an expensive and time consuming nuisance.

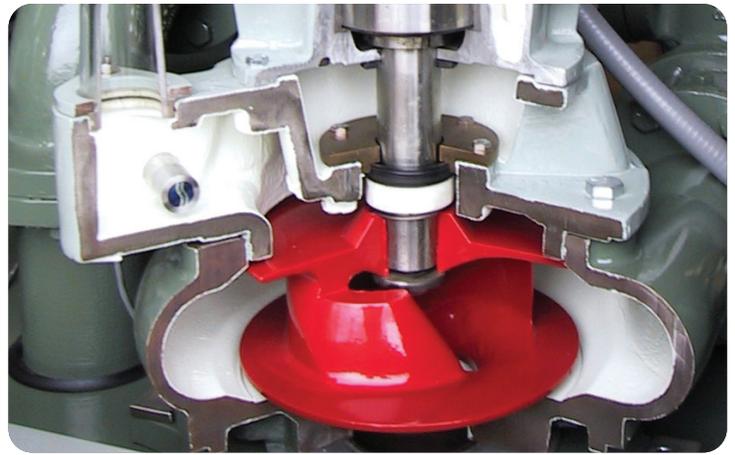
and more. The situation was compounded following the prison expansion because the pumping station was now more centrally located within prison grounds. This meant that any time the operations group had to perform service, the workers had to be escorted by prison security.

These developments caused the operations firm to assess new solutions for the aging pump station. After a careful evaluation of multiple options, the operations firm chose to replace the submersible pumps with a unique turkey solution: an above-ground packaged pumping station known commercially as the **EVERLAST™** Wet Well Mounted Pump Station by Smith & Loveless. The manufacturer not only provided the new pumping station equipment, but served as the project designer and contractor, removing the original submersible equipment within the wet well and assuming the commissioning of the **EVERLAST™** system on top of the existing wet well.

The new above-ground pump station concept is night-and-day from the previous the previous submersible approach. Instead of submerging the pumps in the hazardous wet well, the pumps along with the valves instead sit at the ground level. The station pumps utilize a simple vacuum-priming process to lift the sewage liquid into the pumps to prime and complete a pumping cycle.

The benefits are obvious: simplified, immediate operator access to all mechanical equipment while confined space concerns for routine maintenance are eliminated. Routine inspection and maintenance tasks can be completed by a single operator without the need of confined space hazardous, paving the way for lower O&M and lifecycle costs in pumping.

The pump station is equipped with proprietary S&L Non-Clog Pumps, each designed to pass three-inch solids. These pumps exclusively feature oversized stainless-steel pump shafts, oversized bearings, and bronze seal housings in order to deliver high efficiencies and extremely long service life (as implied in



Specifically designed for applications with high volumes of consumer flushables, the X-PELLER® impeller even works well in low flow conditions.

the system's trade name). For the prison installation, the pumps were also fit with customized mono-port **X-PELLER®** Non-Clog Pump Impellers. The open mono-port impeller design dramatically reduces hang-ups while maintaining perfect balance. During the new pumping station's first year of service, pump clogs have been eliminated at the prison site.

The entire pumping system was completely factory-built and shipped directly to the prison. Installation was achieved in less than a day after the station was set in place, inlet and outlet piping connections were made, and electrical connections were completed. Since commissioning the **EVERLAST™** Pump Station, the operations staff report that the routine of unclogging sewage-coated pumps is over. Now, staff only makes weekly inspections to check normal operation.



The EVERLAST™ above-ground pumping station at the prison simplifies operator access and eliminates confined space concerns by mounting a complete lift station at grade level in a quick-access enclosure. All pumping and control equipment is safely accessible by a single operator, significantly lowering O&M time, hassle and cost.