

## Wastewater Solutions for a hospital in Libya

Continuing the trend of significant growth in Libya for WPL Ltd and El Zulal, the most recent development has been to provide wastewater treatment solutions for a hospital near Ubari. These facilities were provided as part of a co-operation project between El Zulal and the Libyan Government.

El Zulal are the local expert distributors and installers for WPL's wastewater treatment solutions across Libya, working in partnership for over two years they have provided wastewater treatment facilities for a range of fixed and temporary locations across the country.



WPL provided a new bespoke HiPAF (High Performance Aerated Filter) plant to sit alongside the previous system they provided to the site located in a remote part of south western Libya. When providing the new sewage treatment solution WPL modernised the prior system to bring it up to date with current Libyan and World Health Organisation (WHO) irrigation regulations and to treat the wastewater to the highest international standards.

El Zulal contacted WPL with their specification needs for this site as they are an internationally recognised leader in the design, manufacture and supply of standardised and bespoke environmental solutions for sewage treatment plants. El Zulal already had an existing working relationship with WPL as they have provided similar solutions for other temporary and permanent sites in Libya. WPL were also a clear choice for this project as they had provided the previous system that required development and updating.

The main contacts within El Zulal were Iftikhar ul Haq and Dave Humphreys who dealt with WPL's International Sales Manager, Mark Howorth, Design Engineer, Pete Barnes, and Engineering Manager, Gary Tasney to complete the requirements for the hospital. WPL provided details specifications for each item of the system provide with technical drawings and quotes.

### Product Specification

The treatment plant provided to treat the wastewater for a hospital near Ubari in Libya consists of a new HiPAF plant and a Sand Filter system. The HiPAF Modular plants consist of twin streams installed below ground, of Glass Reinforced Plastic (GRP) primary settlement, biozone treatment and final settlement tanks. The compressors and control panels that provide air to the system are housed in a kiosk adjacent to the plant. All tanks, covers and kiosks are manufactured in GRP for corrosion resistance and long life.

### The Sewage Treatment Process

Effluent from the hospital is pumped to a holding tank whereby it gravitates to a twin stream plant with two 6.85m primary tanks, for settlement and Biological Oxygen Demand (BOD) reduction before gravitating to the six 4.8m biozones. The biozones are aerated constantly for carbonaceous and nitrifying degradation of the sewage, whereupon the treated effluent gravitates to two 5.7m humus



settlement tanks. Primary sludge is transferred by airlifts to a standalone pump station that lifts the sludge to a storage tank.

The settled effluent is then fed to a Sand filter where 60% Suspended Solids (SS) and 40% BOD is removed. The final effluent is then pumped via a separate pump station to a separate storage tank where the effluent undertakes chlorine dosing and ultra-violet treatments in order to meet the required standards for disinfection and reuse. The settled humus sludge is returned to the head of the works via airlift sludge returns under gravity.

The HiPAF system, working in conjunction with the tertiary Sand filter, produces treated effluent with BOD level sub 10mg/l and SS level sub 10mg/l.

### Benefits

The WPL HiPAF solution provided has been robustly designed to combine versatility, whilst minimising the visual impact on the surrounding landscape. The system has no internal mechanical or electrical components ensuring reliable, low maintenance. The non-corrosive, hard wearing GRP tanks can be easily serviced which was a key advantage for the hospital.

### Service and Maintenance

Although WPL are unable to provide regular maintenance to the hospital in Libya they have provided the site with an extensive Operation and Maintenance Manual which gives details recommended weekly, six monthly, and annual service checks. This manual also supplies information regarding de-sludge intervals and problem solving for the system if required. WPL service engineers are available to help with any queries regarding the sewage treatment solutions provided to the hospital near Ubari.

### Conclusion

WPL provided a new bespoke wastewater treatment solution to work alongside the existing plant at a remote hospital site near Ubari in Libya. This solution incorporated primary, biozone and humus settlement tanks, Sand filters, storage tanks, and kiosks housing compressors and control panels. WPL refurbished the previous plant they had provided so both systems meet current international wastewater standards as well as Libyan and WHO regulations.

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WPL Ltd is an internationally-recognised leader in the design, manufacture and supply of standardised and bespoke environmental sewage, wastewater and commercial kitchen grease management process solutions.

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