Factor UTB

SEPARATING WATER FROM WASTE

DEVIL'S LAIR WINERY WASTEWATER TREATMENT PLANT

Client
Treasury Wine Estates

Address
Margaret River, WA

Completion Date
March 2011 / Upgraded for 2016 Vintage

Factor UTB have designed and delivered wastewater treatment plants for wineries crushing from 2,000t to 50,000t. Factor UTB provided the consultancy, design and construction of a new wastewater treatment plant in late 2010, early 2011. The plant treats the liquid waste from the 3,000 t crush winery, and was designed for a 7 day rolling average fl ow of 50 kL/day, and a peak vintage fl ow 105 kL on any day. Raw wastewater entering the plant during vintage has a BOD concentration of typically 5,500 mg/L, and COD of 9,500 mg/L. Effluent parameters after storage and recycling were to achieve a BOD < 50 mg/L, COD < 120 mg/L, and a Suspended Solids concentration < 50 mg/L. The treated water is irrigated on a limited woodlot. In 2016 the crush was increasing, the plant was upgraded to increase biochemical capacity.

The process is designed to remove 90% of the pollutant load in the reactor up to a maximum of 300 kg BOD on first pass allowing some of the residual load to pass through the plant and be stored in three (3) storages (2.5 ML each) on site. This serves two purposes. The recycling of the effluent from the lagoon through the plant allows the plant to continue to "feed" the biomass during low periods of operation in the winery it also allows for the residual load to be removed through a combination of facultative action in the lagoon by natural processes and then again in the reactor. The plant reduces load on the storage to tolerable levels. This is the most cost effective method of treating high strength wastes to a very high standard, however this process is not always an option due to the available land area.

DESIGN PARAMETERS

Average Design Dry Weather Flow	50 kL / day
Peak Day Flow	105 kL / day
Max Instantaneous Flow	7.5 L / sec
Peak BOD Removal Capacity	300kg / day
in conjuction with Nitrogen Removal	6 kg / day

DEVIL'S LAIR
Margaret River

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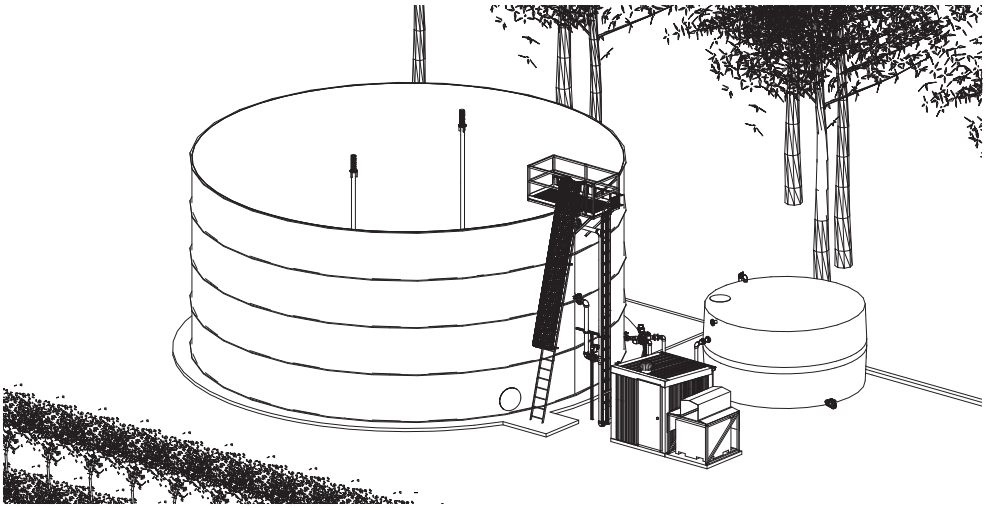
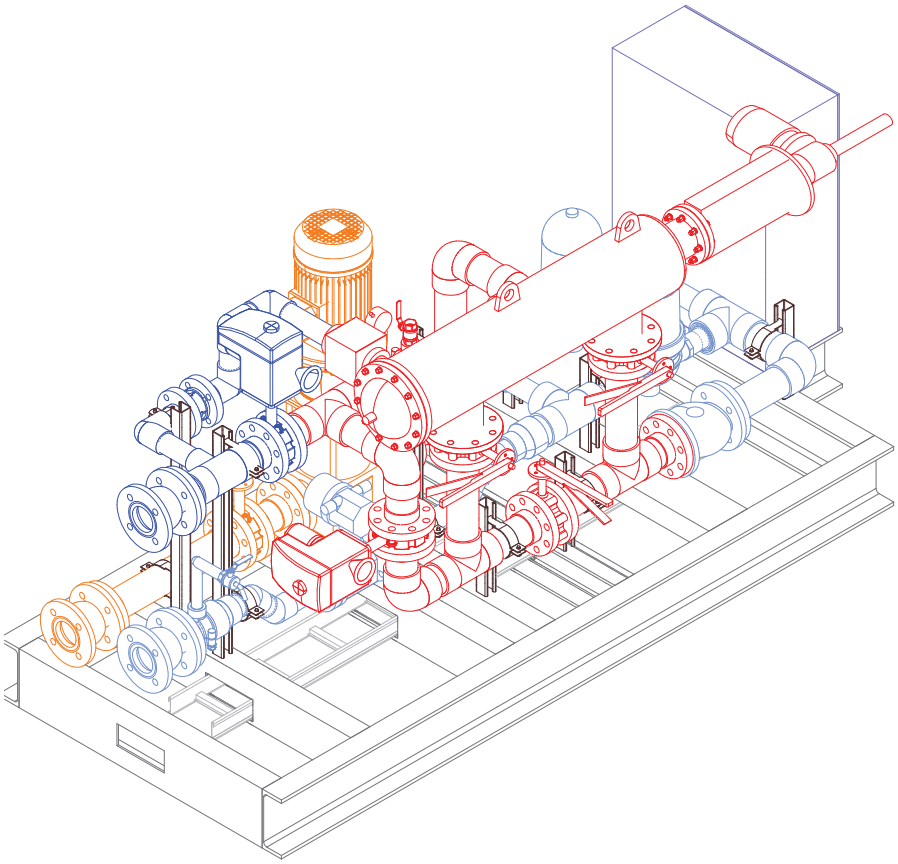


The treatment process is a fill and draw, non-steady state activated sludge process in which the reactor basin is filled with wastewater then operated in a batch treatment mode matched to the incoming load. Dissolved oxygen control allows the energy usage to exactly match the load entering the plant. More importantly it means the system can provide as much treatment as each batch requires but no more than it requires. This efficiency is reflected in actual operating power costs from plants we designed, installed and are currently operating throughout Australia and New Zealand.

The Factor UTB plants are simple to build and even simpler to maintain, requiring minimal operator attendance (typ 1 - 2 hours per week). The simplicity allows the use of high quality equipment, redundancy and sophisticated control allowing all of the treatment steps to be carried out ensures that capital expenditure is of a similar level of our competitors. Process critical mechanical systems are installed as duty / standby, and instrumentation and control systems include redundancy in the design allowing continuing operation in the event of individual instrument failure without signifi cant loss of process performance. This is important during the busy vintage period where the business of wine making can proceed unimpeded.



Equipment for Devils Lair was built onto "Operations Skids" (shown right - filter and irrigation skid), where much of the required plant mechanical & electrical equipment is installed, tested & pre-commissioned before its arrival on site.

Factor UTB prepare all designs and systems audited and accredited under JAS-ANZ to ISO9001:2000.

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