

Recycling Plant Installed At Shell Ultra City Three Sisters

SHELL, PRAGMA <<https://www.youtube.com/watch?v=DNiSEay76Ts>> AND COOL TECHNOLOGY TAKE THE GREEN APPROACH

A totally green approach between Shell, Pragma <<http://www.pragmaworld.net/>> and Cool Technology has resulted in the treatment of black water and sewage on site with a water recovery of between 60 and 70%. The 150m³ per day effluent treatment and grey water recycling plant was installed at the Shell Ultra City Three Sisters.

The installation has resulted in daily water recovery of between 25 000 litres out of season and 120 000 litres in season. Willie Brynard, Project Coordinator at Pragma says it has a huge positive impact on the environment, as the water table is not burdened with huge extraction on a daily basis.

The cost effective design makes it possible to erect these plants in only ten days with minimal disruption on site and the components such as blowers and tanks are readily available in the market place. "We agreed that water needs to be saved at this site as constant drilling of boreholes was not the solution - the cost was escalating and water consumption increasing. It was agreed that a solution should be found to recycle and polish the final effluent for re-use in the toilets and urinals. The rest of the recovered water will be used to irrigate the site as it conforms to the discharge and irrigation standards. This entailed that sufficient storage for treated water would also be required."

A Modular membrane effluent treatment plant was installed with a maximum capacity of 150 m³ per day, which produces grey water to standards well below discharge standards. The Flat Sheet Membrane plant technology applied ensures conformance to the most stringent of discharge guidelines and makes it possible to re-use the recovered wastewater in toilets by polishing it with Cationic Resin filters and sterilising it.

Brynard adds that "the SINAP Membrane technology is widely used in Europe and Asia for industrial, domestic and commercial effluent applications with great success. The plant was designed to be modular and expandable in future if required. This included a PLC control unit to reduce the chance of tampering with settings. Furthermore it is a robust design and is easy to operate and maintain. Service intervals are scheduled at two months whilst daily checks and tasks are carried out by the retailer."

Brynard continues that the design is extremely cost effective with very little to no civils work required except for the cement slab to house the Rota Mold Tanks and Membranes. “The membrane technology ensures that a constant, conforming and re-usable final effluent is produced. The plant size is also dramatically reduced as no clarifier is required in an MBR Plant, making it possible to double the capacity on the same footprint.”

Preliminary results show a drastic reduction in water consumption on site. As one of the busier Ultra City sites, it uses up to 120m³ of water per day in season whilst the average daily consumption is between 20m³ and 55m³.

“The water recovery rate back to toilets is currently between 60 and 70%. This is a recovery and re-use of over 10 million liters of water per year. Metering with online monitoring is being installed to capture exact data and future analyses and reporting purposes. The membranes ensure that water is 100% sterile with a coliform count of zero. After filtration the recovered wastewater is sterilised before storage and re-use. Furthermore, bi-monthly water sampling is undertaken and a strict record of results is kept to ensure conformity. A scheduled preventative and servicing programme is in place to ensure optimal operation and functionality of the plant and a daily checklist and register has also been put in place with retailer staff that have been trained to attend to the day to day operation of the plant,” concludes Brynard.

“The water recycling project at our remote sites is just another example of Shell’s commitment to protect the environment”, comments the Shell Engineering Team. This green initiative is now also being applied at other remote sites where water supply is a problem. Plants are currently being installed at Ultra City Mvoti and Ultra City Estcourt, with further plants being installed in September and October at Ultra Cities Polokwane North and South and Limpopo Beitbridge.

“As an engaged asset management partner <<http://www.pragmaworld.net/services/>> , Pragma is geared towards focused improvement and ensuring that we help our clients to maintain and preserve all their assets to the benefit of the company as well as the environment”, concludes Andre Cloete, Operations Manager for Shell at Pragma.