

Landers Shute Water Treatment Plant



Landers Shute Advanced Water Treatment Plant.

- Catchment – Maleny Plateau.
- Source waters – Obi Obi Creek and tributaries.
- Storage – Baroon Pocket Dam.
- Intake – Variable height from Baroon Pocket Dam, gravity to water treatment plant.
- Treatment System – Ozone ,Bacterial activated Carbon.
- Distribution – Buderim, Maroochydore, Caloundra, Beerburrum and surrounding areas, bulk distribution by LinkWater and reticulation by the Sunshine Coast Regional Council.
- Consumers – supplies approximately 150,000 properties .

Stage 1 of the plant was originally designed with a nominal capacity of 75 ML/d. The rated capacity was later increased to 80ML/d. The Stage 2 upgrade was carried out in 2003, during which the conventional treatment plant was duplicated and the ozone BAC technologies added. The upgraded plant has a capacity of 140 ML/d .

The water treatment processes at the Lander's Shute WTP, in process order, are:

Catchment:

- Maleny plateau.
- Obi Obi Creek and tributaries.
- Water quality monitoring is undertaken through out the catchment.



Baroon Pocket Dam:

- Water quality monitoring is undertaken in the dam.
- There is a variable height off-take, five different levels.



Gravity main to WTP:

Pre-coagulation oxidation:

- Potassium permanganate used to oxidation of soluble manganese.
- Only dosed when soluble manganese reaches a threshold level.

Lime addition:

- Alkalinity adjustment.
- Only required when potassium permanganate is being dosed.
- pH correction with carbon dioxide.
- Required to reduce pH in the instance of an algal bloom.



Pre-coagulation ozonation:

- Supernatant and filtrate from the sludge thickening process is returned to the Inlet Tank just prior to the ozonation process.
- Required for the control of filter clogging algae (FCA).
- Pre-ozone is run continually, unless potassium permanganate is being used.
- Contact time is 3 mins.



Coagulation:

- A grade liquid alum used as the coagulant.
- Flash mixer.
- On-line pH meter pre and post coagulation.
- Operator daily grab samples from the flash mixer – pH and alkalinity.



Flocculation and sedimentation:

- propeller flocculators.
- Operator daily grab samples from the combined basin outlets – pH, turbidity and soluble and total manganese.

Primary filtration:

- 11 dual media filters.
- Sand and anthracite.
- On-line turbidity of individual filter filtrate.
- Head loss measured on-line.
- Operator grab samples of combined filter effluent – pH, turbidity, true colour, soluble and total manganese.



Inter-stage ozonation:

- 10 minute ozone contact time.

BAC filtration:

- Eight (8) BAC filters.
- On-line turbidity of combined filtrate.
- Operator daily grab samples, combined BAC effluent – pH, turbidity and true colour.



Chlorination:

- Chlorine gas prior to clear water storages.
- On-line chlorine and pH meters.
- Treated water reservoir capacity is 18.1ML (combination of two storages in series).

Lime addition:

- pH correction of final water.
- Lime added to the first clear water storage.

Fluoridation:

- Sodium fluorosilicate dosed.
- On-line fluoride meter.
- Automatic shut down of fluoridation if set-point reached.



Pure Water:

- On-line chlorine and pH meters of treated water leaving the clear water reservoirs.
- Operator daily grab samples – pH, turbidity, true colour, soluble and total manganese, alkalinity, aluminium and chlorine residual.

The wastewater treatment processes are:

Settling of backwash water.

Thickening of sludge:

- Polymer and lime dosed.
- Operator grab sample - % solids.

Dewatering of sludge with:

- Polymer dosed.
- Two plate filter presses.

Filtrate and supernatant is returned to the head of the plant.



Renewable Energy Engineered To Make Water Supply Sustainable For The Sunshine Coast



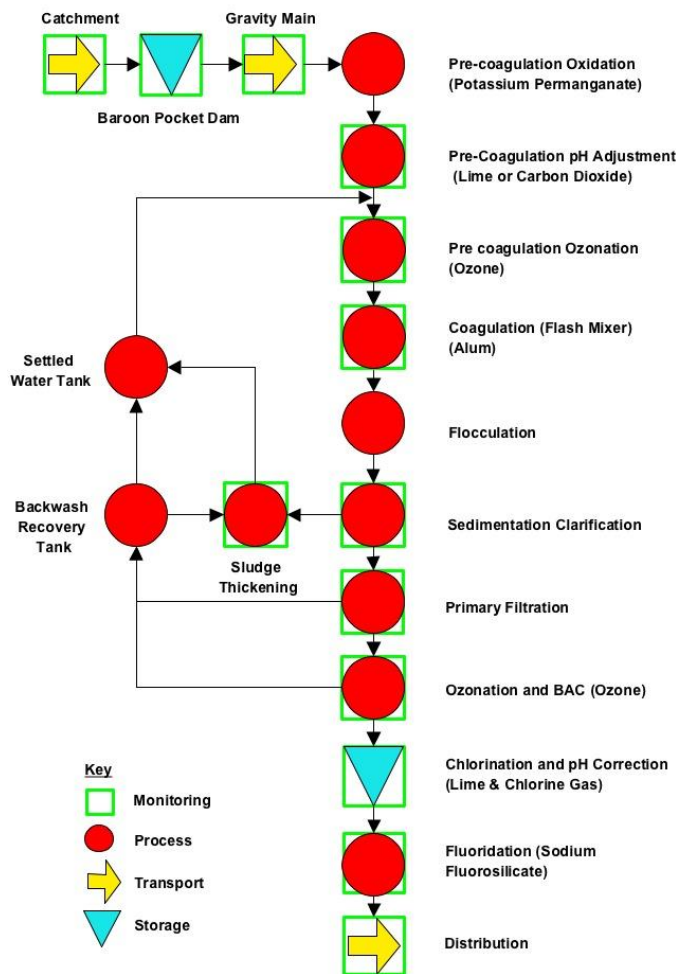
3kW solar power generation system

Hydro Electricity Generation Facility which has a maximum output of 324kW and generates 70kWh per megalitre of treated water when the dam is full.



Landers Shute Advanced water treatment plant utilizes both Hydro electric and solar power.

Landers Shute Treatment Process Chart



SOURCE STORE TREAT SUPPLY





