



Shubham Case Study – Ball Aero can

Effluent Treatment Plant – 105 KLD (ZLD)

ABOUT BALL

As the global leader in metal packaging, Ball leverages its diverse manufacturing capabilities to deliver best-in-class aerosol packaging to our customers worldwide.



Expected Generated Effluent:

High TDS – 10000 PPM
High pH – 12.5
High Metal content
High Temperature - 65 Degree C

Use of Treated Water: **Reuse in product Manufacturing**
Sensitivity of Treated Water: **High**

Ball Aero can is the leading supplier of extruded Aluminium aerosol cans all over the world that can be filled with a diverse range of products as follows:

Aluminum Cans used in Deodorants, Beverage cans, Strawster, Aerosol cans Etc.



CHALLENGES FACED

- **Metal Removal**

The treated water is to be used again the process so that it must not contain any of the Metal impurities. Integrated water solutions designed by Shubham helped them to reduce and reuse water to meet their economic and environmental sustainability goals with a cost-benefit assessment accounting that includes on-going operation and maintenance costs.

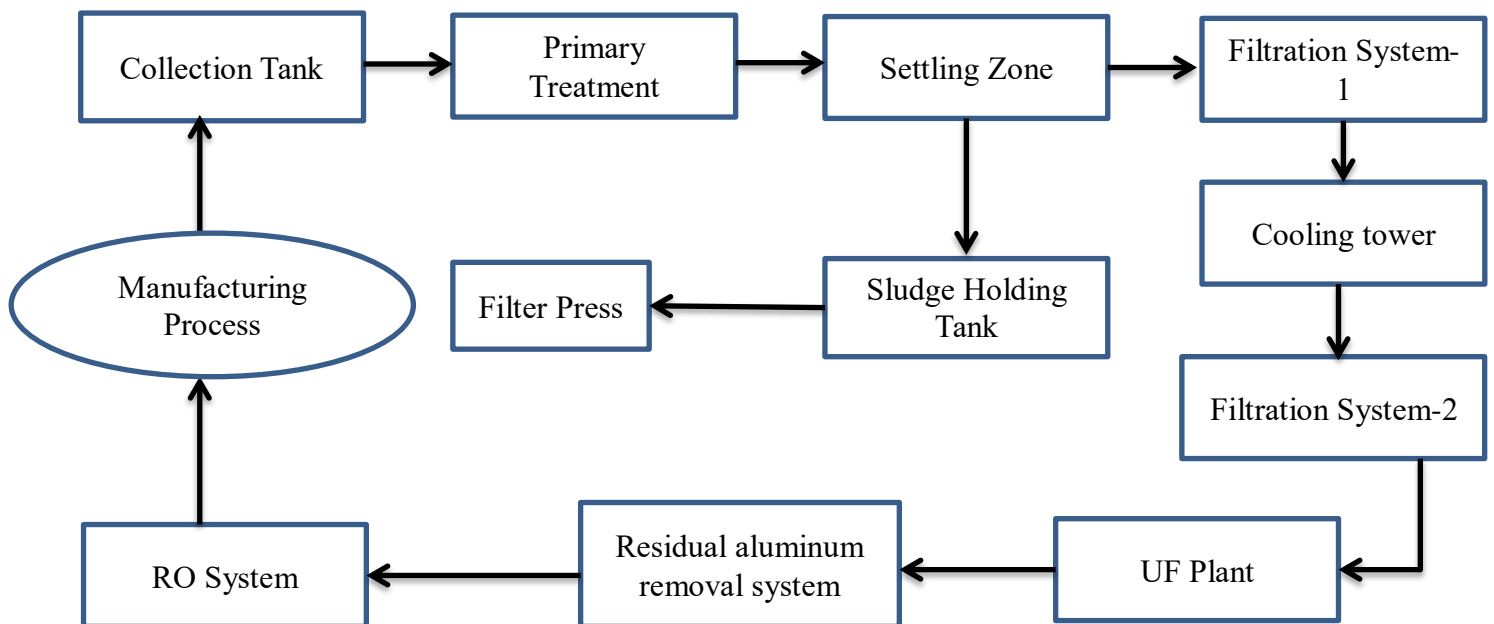
- **Small Foot Print**

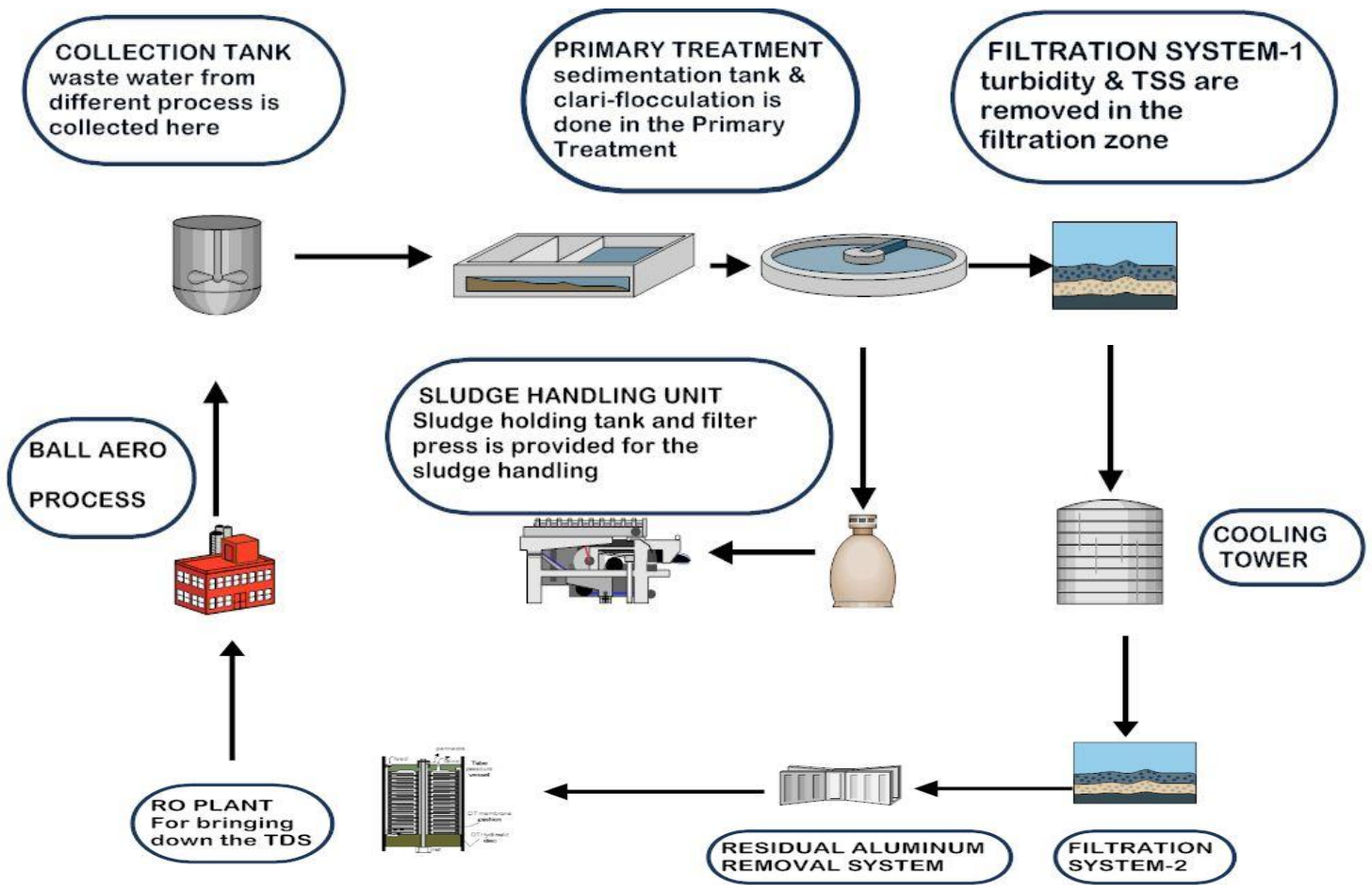
The entire cycle of treating waste water generation, and the final supplying of the treated water to the process area required certain foot print area. But the availability of the space for the EFFLUENT TREATMENT plant was too conservative and hence the designing of the treatment plant needed to utilize every mm of space effectively. The entire vertical & horizontal available space was scrutinized to fit the plant effectively for operation & maintenance.

- **High Temperature**

Handling of high temperature effluent is always challenging. Our focus remains to use this energy or to use the minimum energy to bring down the temperature for the suitable use.

PROCESS FLOW DIAGRAM





PROCESS SUMMARY

Basic wastewater treatment consists of a combination of **physical, chemical, advanced processes** and operations to remove solids, organic matter and, some nutrients from wastewater. General terms used to describe different degrees of treatment, in order of increasing treatment level, are primary, secondary, and tertiary and/or advanced wastewater treatment.

From different process the waste water is **collected** in the **collection tank**, it is equalized (in terms of pH & temperature) and then primary process (**flocculation & coagulation**) is carried out to lower the content of dissolved solids. **Settling zone** is provided for the settlement of the solids and then the sludge was treated by the filter press. **Cooling tower** cools down the settled water for further processing..



In the **advanced treatment**, water from the cooling tower was again treated by the **ultra filtration plant** followed by **residual aluminum removal system** to remove any remaining dissolved metal impurities released from the cooling waste water.

Final treatment is the final cleaning process that improves wastewater quality before it is reused, recycled in the process finally **RO plant** was provided so as to bring down TDS to meet the water quality requirement for the **product manufacturing**.

RESULTS

INLET PARAMETERS

Total Dissolved Solids - 6413

pH - 12

Aluminum - 4000

Conductivity - High



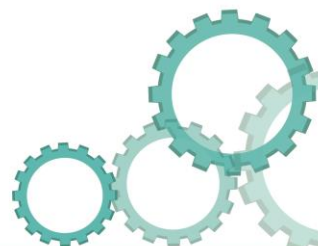
OUTLET PARAMETERS

Total Dissolved Solids - 14

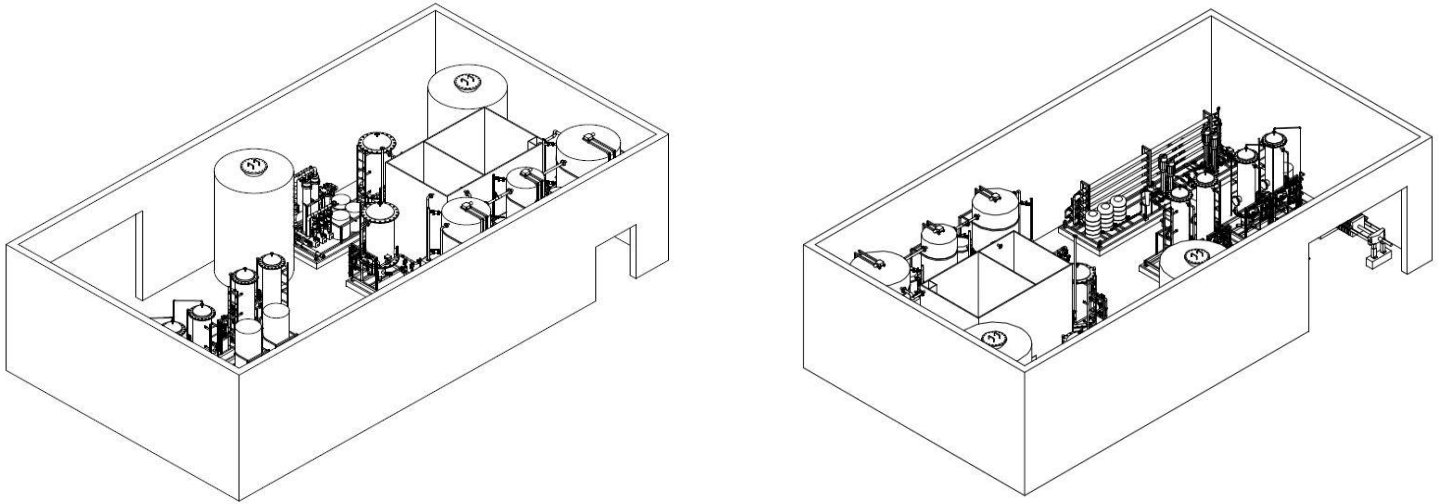
pH - 5.59

Aluminum - BDL(Below
Detectable limit)*

Conductivity - NIL



PLANT VIEW



SUMMARY

The overall water management objectives of effluent wastewater treatment are associated with the removal of pollutants and the protection and preservation of our natural water resource. Of specific concern is protection and full usage of the space and the area available for the installation of the plant which includes the water feeding from different sources and mixing them so as to maintain the pH and the temperature so that the process gets easy further.

In spite of lots of challenges for us we designed a system which is running excellent and giving very satisfactory result. We are glad to provide a treatment system which is easier in operation and treated water is used back in the process so as to conserve water.

