



Waste Water Treatment Submersible MBR

Oil & Gas Client

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BACKGROUND

ClearBakk was approached by a major Oil & Gas client in Alberta to help in treating their wastewater collected from a 1700 person camp to meet unrestricted reuse standards (California Title 22) which is more stringent than Alberta Environment discharge standards.

MAIN FEATURES

- Membrane bioreactor system is used to meet stringent discharge standards.
- Use of membranes allows for a faster startup time and more reliable effluent quality than traditional extended aeration plants.
- The membrane removal is provided within a heated enclosure, allowing for membranes to be serviced at any time of the year.
- Modular Sewage Treatment Plant (STP). Minimum on-site setup time. Stack design facilities no piping, heat trace or electrical connections are required on-site between the STP buildings.
- All tanks and screens are closed and vented outside with access hatches allowing visual observation of the process, allowing the top building to be classified as general purpose, and preventing build up of moisture.



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ADVANTAGES

Two Loads: Easy to install, minimal inter-module connection between two containers, and does not require multiple containers to be connected.

Safety: Numerous safety and operator friendly features, including overhead crane, process tanks are sealed and vented outside, lockable hand-off-auto switches for easy equipment LOTO on Control Panel, gas detectors, smoke detector and mounted fire extinguishers.

Small Footprint: 76' L x 14' W.

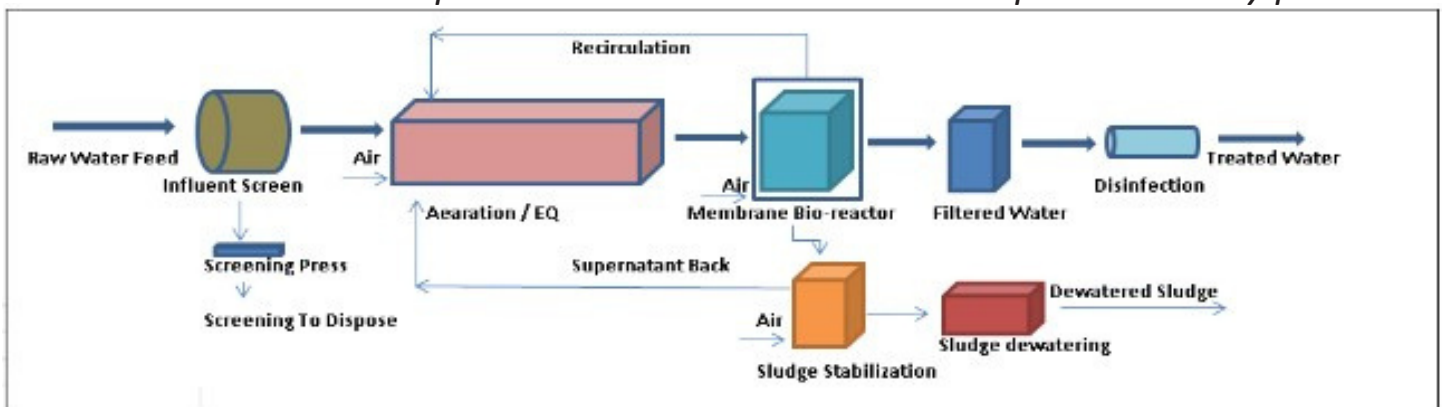
Modular: Easy for expansion; additional plant module can be installed in parallel for future camp increases.

Highest Quality: All tanks, structural members and flooring are made of aluminum alloy to ensure the asset life is maximized.

SYSTEM INTRODUCTION

Constituent	Average 5-day carbonaceous Biological Oxygen Demand (cBOD ₅), mg/L	Peak 5-day carbonaceous Biological Oxygen Demand (cBOD ₅), mg/L	Total Suspended Solids (TSS), mg/L	Ammonia-Nitrogen (NH ₃ -N), mg/L	Alkalinity (as CaCO ₃), mg/L	PH	oil and grease, mg/L	Influent Temperature, °C	Total Coliform, MPN / 100ml
Influent	400	600	400	<40	>350	>7; <8.5	<80	>15; <25	
Effluent	5*	-	5*	-	-	6.5-8.5	-	-	2.2**

Total coliform bacteria 2.2 PN per 100 mL, based on a seven sample median and does not exceed 23 MPN per 100 mL in more than one sample in a 30 day period.



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SYSTEM OVERVIEW

Design Capacity: 1660 People

Design Average Daily Flow (DAF): 373 m³/day

Peak Hourly Influent Flow: 1468 L/min

Expandable: Easily expandable to handle 2000 people with 440 m³/day flow rate.

Effluent meets discharge and unrestricted reuse standards (California Title 22)

Building Sizes: One 14' W x 80.8' L x 12.9' H

+ One 14' W x 63.7' L x 13.2' H



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SUMMARY

- Modularized package; easy to install, easy for expansion; minimized site work.
- Two-story building, minimize the footprint. Easy to move if required.
- One tank structure contains all the treatment retention time for aeration, equalization, membranes and sludge storage.
- Spacious top building provides adequate room and access to all equipment, storage for spare parts.

TREATMENT ACHIEVED

Treated water quality meets or exceeded quality guidelines.

