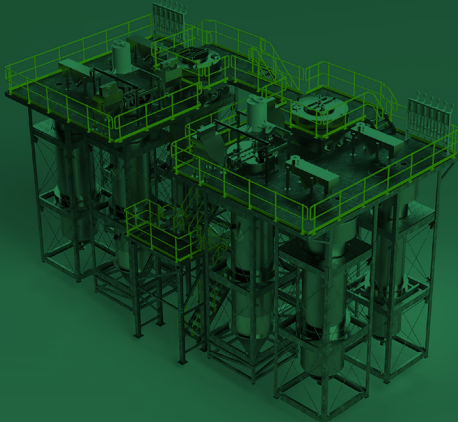


Saves Water & Salt, Reduces CO_{2e} by up to 75% (~10,000MT/yr CO_{2e})



TREATMENT SPECS (from Heavy Brackish Groundwater):

- Produces NaCl Workover Brine: 600 m³/d
- < 440 mg/L SO₄
- < 400 mg/L Mg
- < 400 mg/L Mg
- Na:10,000 - 15,000 mg/L

Additional freshwater can be produced alongside NaCl brine, to serve additional oilfield needs

• PROCESS OBJECTIVE:

- Harness "unusable" brackish water to generate high-spec NaCl oilfield brine.

• HIGH EFFICIENCY BRINE RECOVERY FOR OILFIELD USE:

- implementing core HIROX/CIF technology from CleanTeQ, NESR built a first-of-its-kind commercial plant that first removes heavies, then "tunes" NaCl content to match oilfield brine specs of the client.

• PRESERVES FRESHWATER FOR COMMUNITY USE:

- By generating brine from non-potable, "unusable" wastewater for oilfield use, the plant offsets consumption of precious RO water that was previously used in the conventional brine mixing.

• ELIMINATE THE NEED TO MIX SALTS:

- The 'Carbon Light' brine plant tunes the output salt content that already exists in the feed, thereby eliminating the need to buy & mix NaCl salt.

• REDUCES WASTE LOGISTICS & FOOTPRINTS:

- By offsetting both freshwater & salt procurement in the conventional brine process, the 'Carbon Light' plant drives decarbonization by eliminating the associated trucking & logistics of these inputs.



Complete water analysis

Cations				Anions			
component	mg/l	Converting	me/L	component	mg/L	Converting	me/l
Sodium	5,433,734	0.0435	236,3674	Chloride	9,497.06	0.0282	267.817
Calcium	1000	0.0499	49.9	Sulfates	2,900	0.0208	60.32
Magnesium	510.3	0.0823	41.9977	Bicarbonates	18	0.0164	0.2952
Iron	0.18	0.0358	0.006444	Carbonates	0	0.0334	0
Barium	11	0.0146	0.1606	Hydroxide	0	0.0588	0
Total Cations	6,955,214		328,4322	Total Anions	12,415.06		328.4322

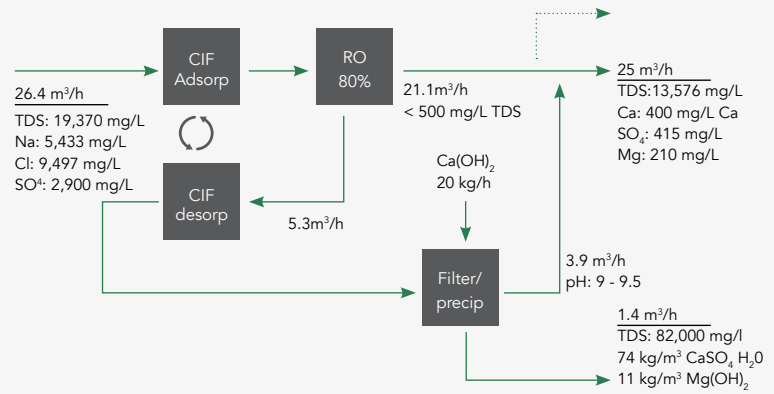
Table

Saves Water & Salt, Reduces CO₂e by up to 75% (~10,000MT/yr CO₂e)

Property	Value	Units
PH @24.6 °C	7.190	
Density @26.4 °C (Connected @15.6 °C)	1.0165 1.0193	g/cc g/cc
Dissolved Solids (TDS)	19.370.268	mg/L
Total Suspended Solids (TSS)	55	mg/L
Turbidity	0.59	NTU
Sal% from TDS= 1.937026872%		
Sal from Refractometer=2.1%		

HIROX® WITH RO, BLEND BRINE AFTER DEWATERING

- Remove Ca with CIF
- Remove Mg with Ca(OH)₂
- Blending of RO and NF permeate to control treated water quality



	Conventional approach with SWRO	Units
Recovery	35%	95%
Feed volume	71 m ³ /h 1,714 m ³ /d	26 m ³ /h 634 m ³ /d
Waste volume	46.4 m ³ /h 1.114 m ³ /d	1.4 m ³ /h 34 m ³ /d

- **Waste reduction up to 97% (vs. RO)**
 - **Offsets 1.7mm bbl freshwater per year**
 - **Eliminates 700x truck trips per month**
 - **Offsets up to 10,000 metric tons CO₂e per year**
- = 4k passenger vehicles, 20k pounds coal burned, 3.5k household electricity consumption, 2.2mm smartphones charged.**