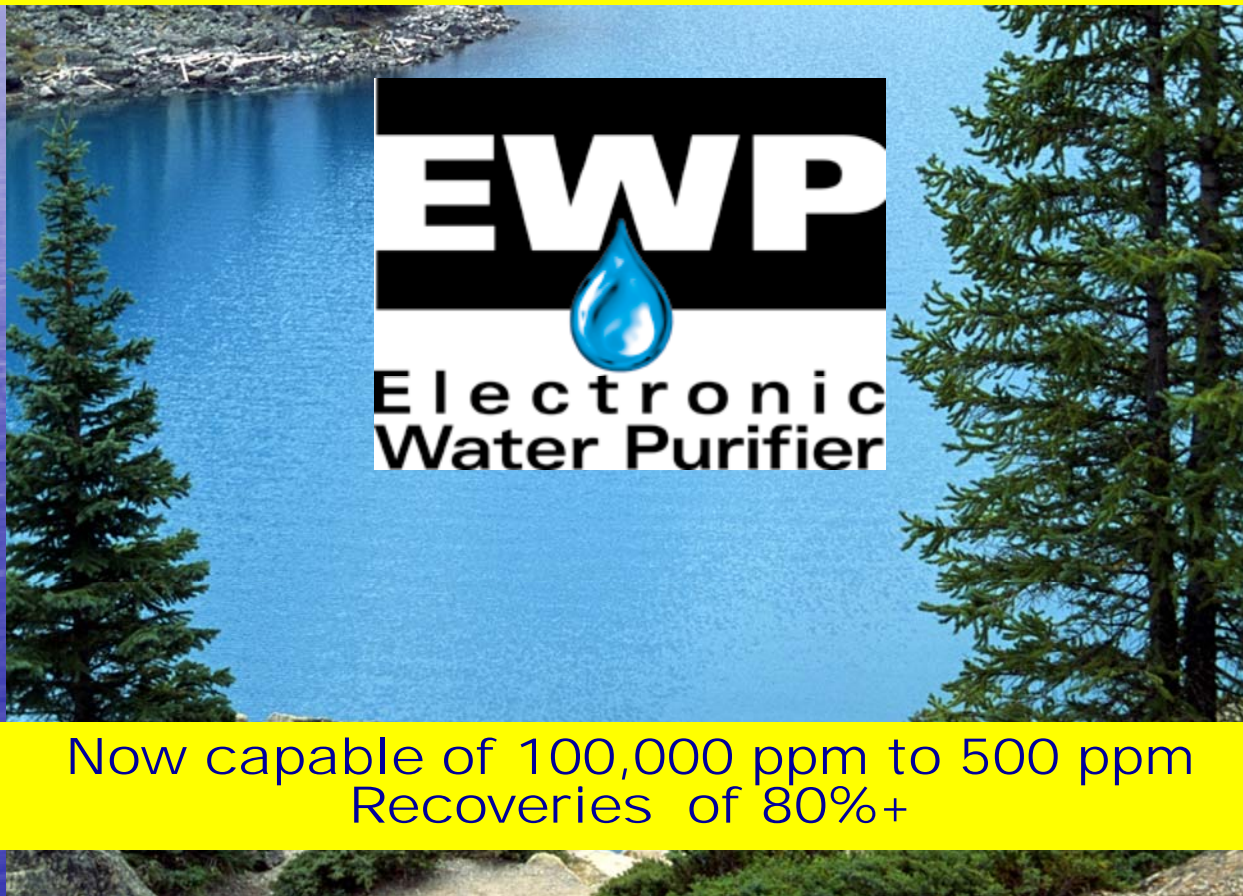


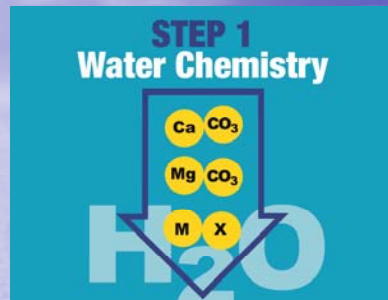
Water's Best Kept Secret

**How to treat high salinity waste water
for surface discharge at a 90% recovery - or for
beneficial re-use**

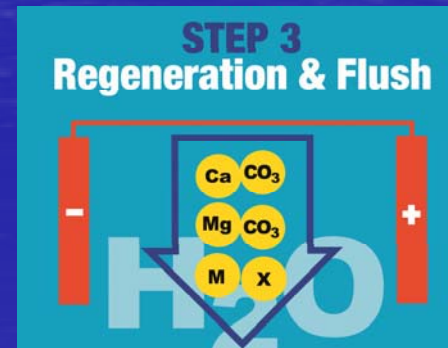
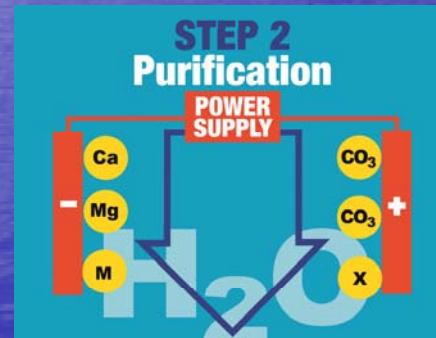


Now capable of 100,000 ppm to 500 ppm
Recoveries of 80%+

After 17 years of development & testing **How is EWP meeting the Challenge**



90%+ removal of ions
75% to 90%+ recovery
98%+ removal of harmful pollutants



US Patent Application 11,864,8879 and PCT)
Hybrid CDI and EDI

General Features of EWP

- Limited pretreatment-clear and particulate free
 - *Capable of 100,000 ppm TDS*
 - *Reuse the product water*
- All solid state process and electronics
- No chemicals
- Recoveries from 80% to 90% (with waste recovery)
- Cells never replaced, 10 year useful life
- Power at 10,000 ppm 3 kwh/m³
- Rental available

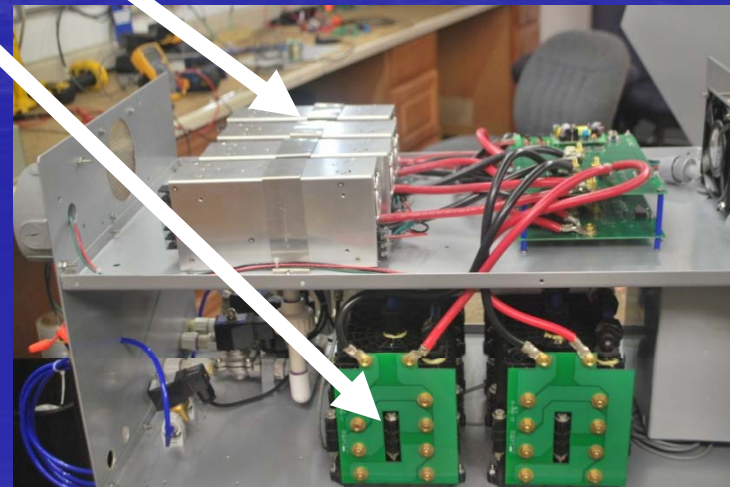
The Secret is Embedded in the Cell

Technology Space: Capacitive Deionization



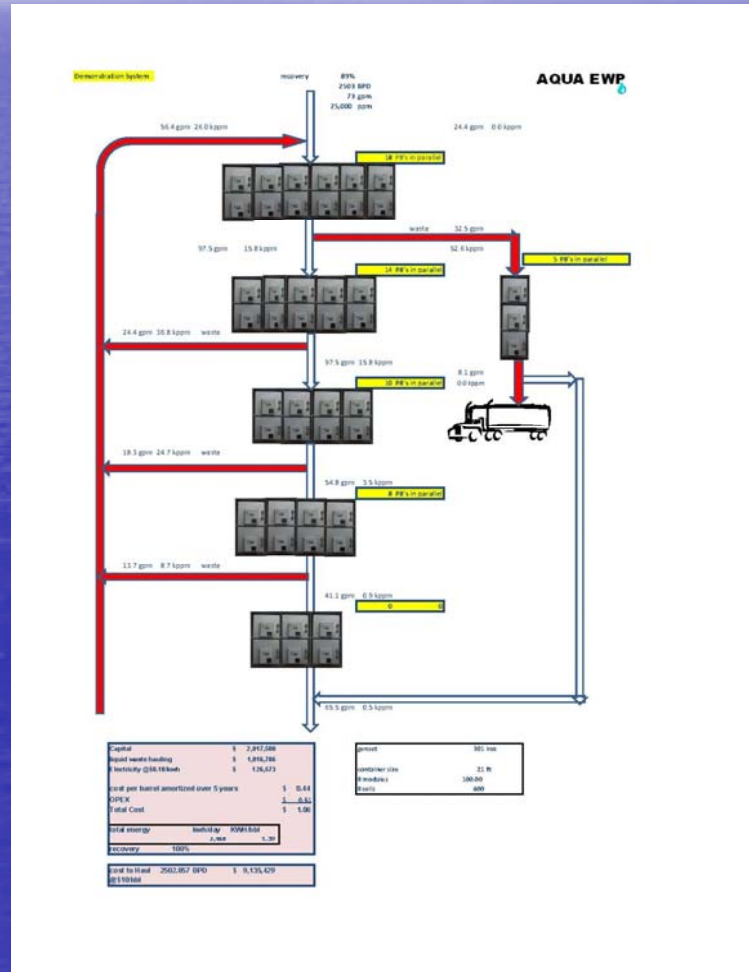
It's simple: Cell and Power Supply

- Largest module 500 bpd



Process Flow

10 stage EWP unit 85% recovery
25,000 ppm feed; 500 ppm discharge



CBM Produced Water for a year large systems 1,000 BPD



6 modules: 3 parallel 2 series



Analytical Results

Inorganic Chemistry - Metals

LOR Result

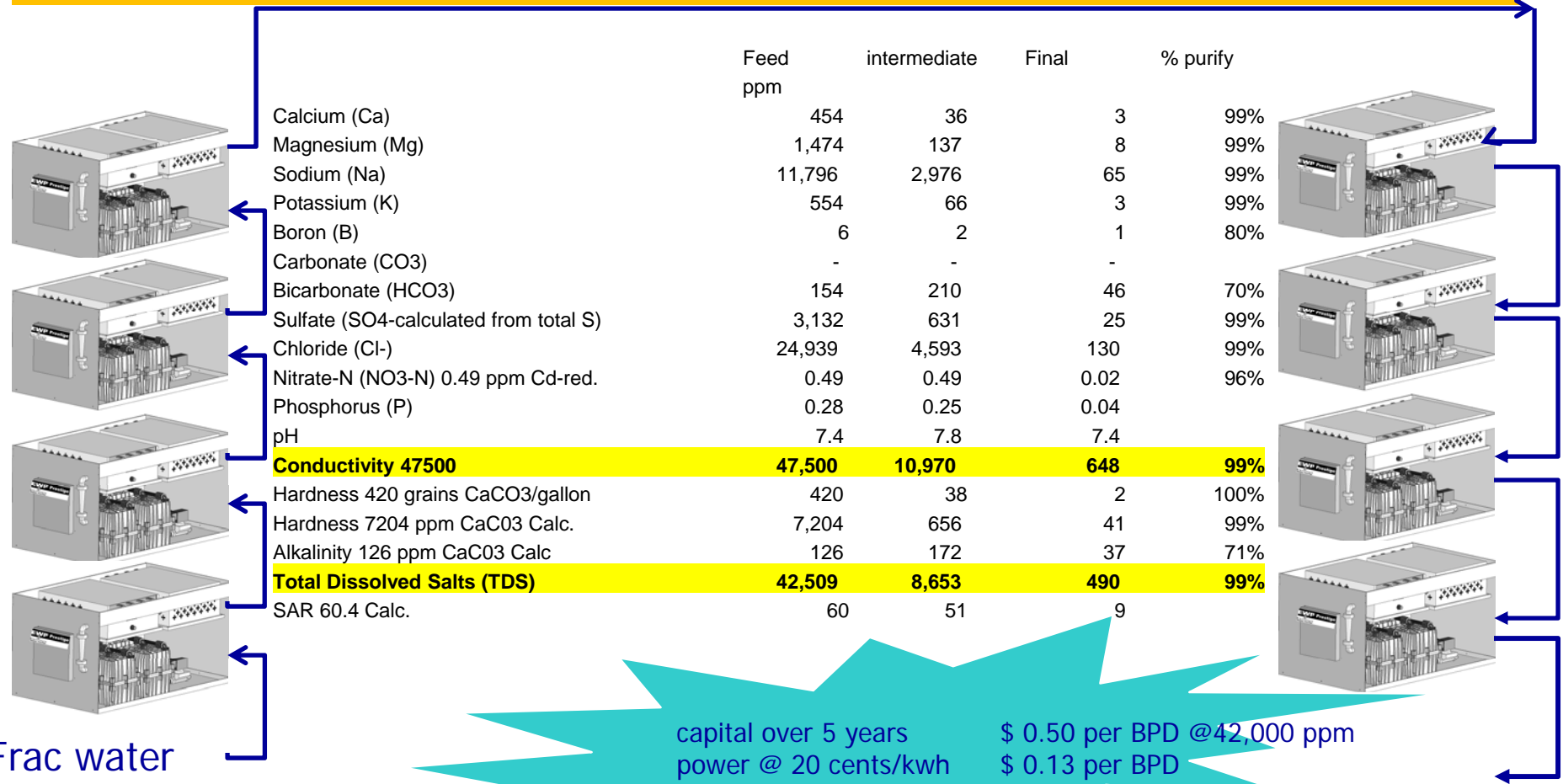
	Before	After
Boron - Soluble	0.221 mg/L	0.222 mg/L
Calcium	67 mg/L	0.42 mg/L
Magnesium	79.6 mg/L	0.34 mg/L
Potassium	14 mg/L	0 mg/L
Sodium Adsorption Ratio - Calculation	7.79	0.93
Sodium	398 mg/L	3.34 mg/L
Sulphate	158 mg/L	1.5 mg/L
Total Hardness as CaCO ₃	495 mg/L	2 mg/L
Chloride	590 mg/L	96 mg/L
Nitrate + Nitrite as N	0.298 mg/L	0.068 mg/L
Nitrate as Nitrogen	0.266 mg/L	0.05 mg/L
Nitrite as Nitrogen	0.032 mg/L	0.018 mg/L
Phosphorus - Total	0.066 mg/L	0.015 mg/L
Alkalinity as Calcium		
Carbonate	318 mg/L	41 mg/L
Bicarbonate	388 mg/L	50 mg/L
Carbonate	0 mg/L	0 mg/L
Hydroxide	0 mg/L	0 mg/L
Conductivity	2700 uscm	320 uscm
Total Dissolved Solids (by EC)	1500 mg/L	180 mg/L
	pH	pH
pH	7.4 units	6.8 units



10,000 ppm—4 stages

Analyte	Units	Feed	Purify	Waste	Purify	Waste	Purify	Waste	Purify	Waste
Alkalinity, Total as CaCO ₃	mg/L as CaCO ₃	150	150	150	75	400	38	525	8	625
HCO ₃	mg/L	180	180	180	45	630	11	743	5	765
CO ₂	mg/L	0	0	0	0	0	0	0	0	0
OH	mg/L	0	0	0	0	0	0	0	0	0
pH	-	7.7	7.3	8	4	20	2	26	1	30
Calcium	mg/L	176	34	460	9	545	2	566	0	572
Magnesium	mg/L	750	130	490	33	815	8	896	2	918
Sodium	mg/L	5,835	2,312	15,881	1,156	19,734	578	21,661	231	22,817
Potassium	mg/L	273	67	685	34	797	17	853	7	886
Strontium	mg/L	3.5	0.8	9	0	10	0	11	0	11
Barium	mg/L	0.08	0.02	0.03	0	0	0	0	0	0
Iron	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silica	mg/L	0.006	0.003	<0.001	0	<0.001	0.003	<0.001	0.003	<0.001
Boron	mg/L	<0.001	<0.001	0.02	<0.001	0.02	<0.001	0.02	<0.001	0.02
Aluminum	mg/L	0.006	0.02	0.001	0	0.001	0	0.001	0	0.001
Manganese	mg/L	0.003	0.003	0.004	0	0	0	0	0	0
Chloride	mg/L	5,000	3,300	11,400	1,650	16,900	825	19,650	330	21,300
Bromide	mg/L	<25	<25	<25	<25	<25	<25	<25	<25	<25
Sulfate	mg/L	900	100	2,500	50	2,667	25	2,750	10	2,800
Nitrate	mg/L	0	0	0	0	0	0	0	0	0
COD	mg/L	3,500	1,750	9,333	100	14,833	0	15,167	0	15,167
BOD	NTU	1,250	550	3,583	0	5,417	0	5,417	0	5,417
Turbidity	NTU	0.7	0.8	0.5	0	2	0	3	0	3
Total Dissolved Solids	mg/L	10,500	7,500	21,500	3,750	34,000	1,875	40,250	750	44,000

EWP is now capable of Frac Flowback Water Desalination In 8 stages in series

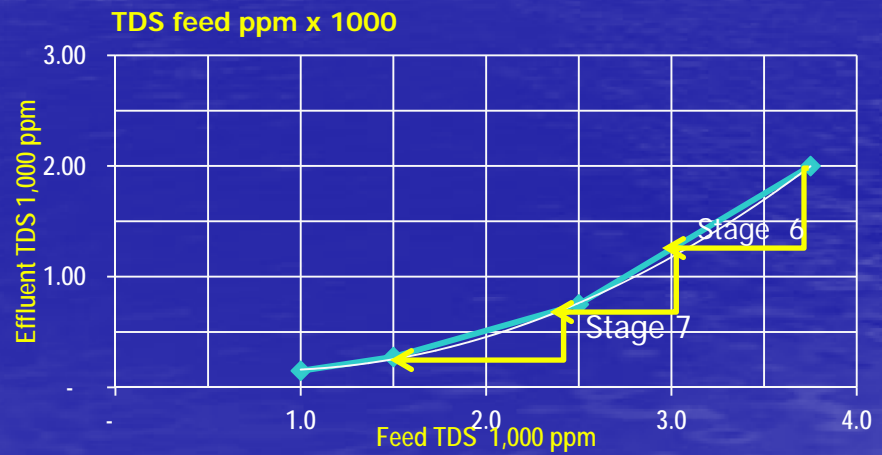
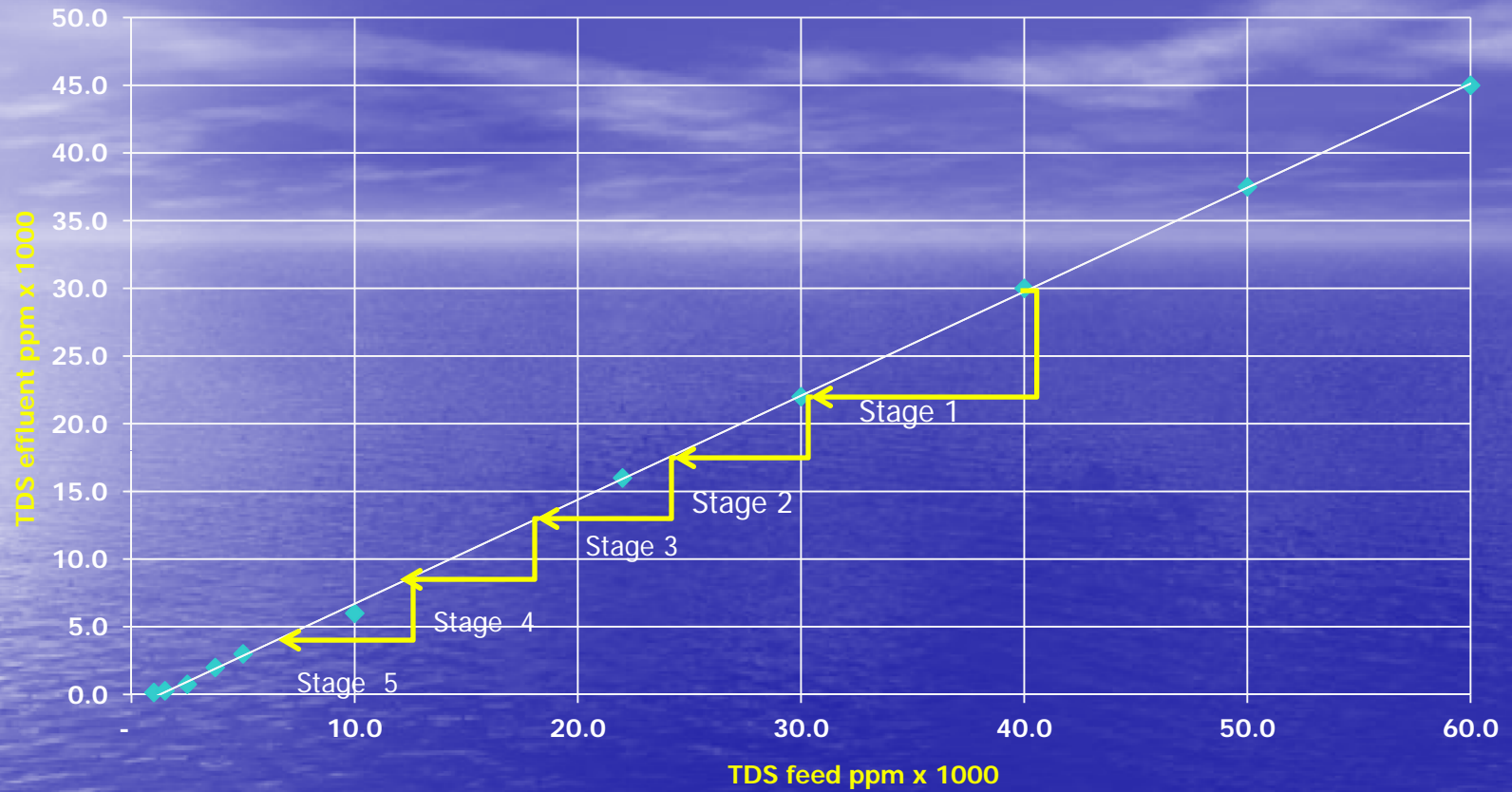


Frac water

With 5 more stages for Waste Water Recycle—
85% recovery



High Salinity Process



Value Proposition

- Small size and footprint
- Low profile for environmental mitigation & visual impact
- Peace of Mind that NPDES limits are met
- Water is available for future needs or for discharge
- Affordable and competitive
- No other technology goes to 200,000 ppm on waste water!...with limited pretreatment at high recovery
- Our length in service record
 - 6,000 cells in service since 2009
- Operational Flexibility & Portability
 - Easy to operate—simple process
 - move the unit as water flows change





www.AquaEWP.com