

Produced Water Treatment By EPT-EOX for Reuse in Steam Generation

The Situation

Water treatment and steam generation are critical to in situ oil production. Due to the high demand of clean water, reuse of waste water is critical to the life cycle and further production of steam in many facilities. Each year millions of cubic meters of contaminated waste water are produced daily. Due to an increased water demand for production, limited quality water availability and continued stringent regulatory requirements, water availability and usage can become a limiting factor. There does exist technologies that will treat this highly contaminated water however they tend to be extremely expensive, time consuming and energy intensive and can operationally be difficult to manage.

The Solution

A successfully SAGD produced waste water pilot exceeding reuse criteria. The EPT-EOX technology can treat the wide variety of contaminants within the waste stream to below criteria. The reuse of water allows further SAGD operations to continue while minimizing the use of fresh water operationally.

Normal Produced	Unit	Initial	Post EOX
pH		6.53	6.39
Turbidity	NTU	137	5.77
Oil & Grease	mg/L	31.7	0.8
H ₂ S	mg/L	50	0
Silica	mg/L	181.5	10.4
Total Iron	mg/L	7.15	0.15
High pH Produced	Unit	Initial	Post EOX
pH		9.65	8.87
Turbidity	NTU	108	6.33
Oil & Grease	mg/L	12.3	0.3
H ₂ S	mg/L	20	0
Silica	mg/L	174.6	19.2
Total Iron	mg/L	0.15	0.1
High Oil Produced	Unit	Initial	Post EOX
pH		9.47	9.37
Turbidity	NTU	458	17.6
Oil & Grease	mg/L	991.5	1.5
H ₂ S	mg/L	20	0
Silica	mg/L	254.4	24.6
Total Iron	mg/L	1.26	0.1



The EPT EOX Results

The EPT-EOX pilot demonstration treated SAGD Produced water from a Facility in Saskatchewan. Treatment occurred at 324m³/day.

- Viable solution, continuous treatment of produced waste water
- Easily handles hydrocarbon upsets, pH fluctuations and high H₂S levels
- Following treatment, the cleaned water can now be reused for production needs.
- Reduced costs of chemical additives, operations and maintenance.
- Easily expanded for future production requirements