

Electrocoagulation

Water Recovery and Reuse

Oil & Gas Industry

Industry Applications

Production water, slop oil, drilling rig process water, coal-bed methane water, frac water, frac flowback and bilge water.

Challenges:

- Contains hydrocarbons, emulsified oil, heavy metals, and other hazardous waste products
- Liability, exposure, costs, and inefficiency of hazardous waste transportation and storage
- Ineffective and expensive use of water

Solution:

Electrocoagulation:

- Quickly separates contaminants and emulsified and free oil
- Makes this water clean enough for reuse
- Eliminates the need to truck in fresh water
- Eliminates the high cost of hazardous waste disposal
- Increases profits:
 - Revenue from harvested oil
 - Savings from water reuse
 - Savings on waste disposal
 - Public relations value

Electrocoagulation vs. Chemical Coagulation

	EC	CC
Effectively Separates Solids	Yes	No
Effectively Separates Oil	Yes	No
Recovers Emulsified & Free Oil for Resale	Yes	No
Produces Reusable Oil	Yes	No
Decreases Sludge By-Product	Yes	No
Decreases Hazardous Wastes	Yes	No
Neutralizes pH of By-Product	Yes/ 7	No/10 +
Lowers Toxic Wastes Storage Liability & Expense	Yes	No
Lowers Toxic Wastes Transportation Liability	Yes	No
Lowers Toxic Wastes Transportation Expense	Yes	No
Lowers Excessive Labor Costs	Yes	No
Lowers Capital Costs	Yes	No
Effectively Separates FRP-121	Yes	No
Effectively Separates Flomax 70	Yes	No
Effectively Separates Scalehib 100	Yes	No
Effectively Separates DBNPA	Yes	No



EC systems are ideal for the oil and gas industry, either at drilling sites, disposal ponds or refineries.

At the drill site EC units separate water from oil and driller's mud while simultaneously removing potentially dangerous contaminants from produced water. They remove barium, calcium and other scale-causing components from flow-back water maximizing recycling and reducing the need for scale inhibitors and the demand on fresh water sources. EC systems will also kill 99.9%+ of bacteria that can sour a well, reducing or eliminating the need for biocides.

EC systems are ideal for disposal pond operations treating produced or flow-back water with a per-gallon-treated service contract. They eliminate odor-causing contaminants and help prepare the water for reuse for hydro-fracturing or other beneficial use (e.g. irrigation).

Please note that EC systems will remove 99% of the radium and other Naturally Occurring Radioactive Material (NORM) found in some flow-back water. The EC process converts the radium to radium oxide, which is not soluble in water and will settle out like sand.

EC systems are excellent for refinery operations. They treat boiler and cooling tower blow-down water and water used in de-salting processes. All three applications will reduce the amount of purchased water required by the refinery.

EC systems are skid mounted, have a small footprint and require little power or attention when operating. They are optimized for field operations.