

TURBOCOAG® TREATMENT FOR OIL AND GAS WATER

Avivid Water Technology provides advanced water purification via its patented TurboCoag® technology to treat oil and gas produced and flowback process water contaminated with emulsified oils, heavy metals, suspended solids, and microorganisms.

Putting a new spin on water treatment.

IDEALLY SUITED FOR REMEDIATION OF:

- Iron, Arsenic, and Lead
- Heavy metals
- Grease, oil, and fat
- Suspended solids
- Microorganisms, including e-coli



FEATURES

- Commercial models from 25 to 200 GPM per reactor
- Controllable throughput
- Continuous water treatment
- Self-cleaning system
- Passivation-free anodes, aluminum, or iron
- Sludge-free reactor
- Higher level of suspended solids handled
- Strong flocculant is easily filtered / quickly settled

TURBOCOAG® SPECIFICATIONS

Design Flow Maximum (GPM)	200
System Power Requirement: Typical	40 kW
AC Power Requirement	480 VAC 3Ø
Dose Rate Range Aluminum (PPM)	37-150
Piping Connections (NPT)	4 x 2"
Nominal pH Requirement Range	6 - 8

CASE STUDY: WEST VIRGINIA PILOT

Produced oil water is by far the largest volume byproduct stream associated with oil and gas exploration and production. Approximately 21 billion barrels of produced water are generated each year in the United States from about 900,000 wells. This is equivalent to a volume of 2.4 billion gallons per day. Research estimates that in the United States alone, the entire water treatment market for this industry exceeds \$34 billion per year. Currently, only 4% of produced water is being recycled while the rest is pumped into deep disposal wells leaving millions per day in potential recycled water revenue untapped. Avivid processed 6000 gallons from a produced water holding pond in West Virginia. Field tests verified removal of 94%+ iron contamination. Avivid has also treated O&G water from CO, NM, OK, PA, ND, and TX.

TurboCoag® significantly reduced the metals in all tests. All heavy metals were sequestered in the heavy metal precipitate sludge as expected. The sludge—which passes the toxicity characteristic leaching procedure (TCLP)—can be disposed of in any landfill while the treated water can then be reused by the operator.

TurboCoag® is a cost-effective alternative to chemical water treatment via its triple patented electrocoagulation (EC) reactors.



**PRODUCED
WATER BEFORE
AND AFTER
TURBOCOAG®
PROCESSING.**

PA PRODUCED OIL WATER

Analyte	Raw	Treated	% Reduced
Fe	77.2	3.04	96.1%
SO4	<300	<150	~50%
TPH (>C12 to C28)	8.04	<4.47	100%

All measurements in mg/L (PPM)
Single pass treatment, not optimized

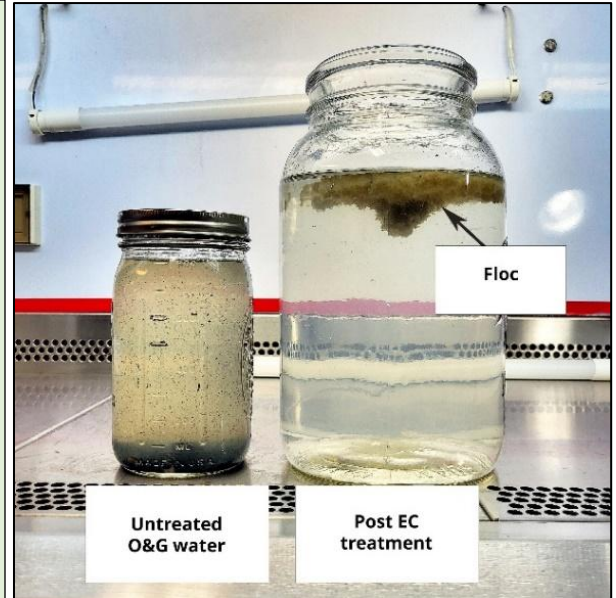


CASE STUDY: MIDLAND, TX

O&G operators that want to recycle their water for field reuse can depend on Avidid for minimal treatment with maximum effect. The produced water pictured at right is minimally treated and after filtration for floc removal will be ready for use. The data table before shows the reduction of bacteria under ATP, with the heavier does resulting in a higher bacterial kill rate.

TurboCoag's EC dosage rate can be controlled to optimize OPEX whether the operator wants to reduce biocide use, meet minimal standards required for re-fracking, or maximize treatment prior to desalination and agricultural use.

Note that TurboCoag doesn't remove lithium from the treated water, making it an excellent pretreatment step for more effective direct lithium extraction.



TURBOCOAG® TREATS MORE THAN OIL AND GAS WATER

Avidid Water has also used its TurboCoag® technology for:

- **Aviation washdown** water for a new US Naval Aviation zero liquid discharge facility, September 2024
- **Heavy metals** removal from an EPA Superfund mine site in Creede, CO in August 2024
- **PFAS** removal from landfill leachate in 2023 and 2024
- Repeated success treating oil and gas produced water in
 - Wells Ranch, CO
 - Jal, NM
 - Midland, TX
 - Dallas, WV

ANALYTE	RAW (mg/L)	LOW DOSE (mg/L)	% REDUCED	HIGH DOSE (mg/L)	% REDUCED
ATP	198	154	22%	55	72%
Barium	0.38	0.18	53%	0.01	97%
Hydrogen Sulfide	55	5.0	91%	0	100%
Iron, total	3.17	0	100%	0	100%
Lithium	35.48	35.08	1%	36.4	-3%
TDS	48,262	47,239	2%	44,239	8%
TPH	19.74	3.33	83%	4.62	77%
TSS	102	22	78%	15	85%



TURBOCOAG ELECTROCOAGULATION REACTOR AT US NAVY BASE

