

H2S Water Treatment Case Study - West Texas



Technology Benefits:

- Uses only electricity
- No chemicals
- No wastestream
- Modular / scalable based on volume
- High volume treatment capacity (upto 30bpm)
- Mobile or fixed units
- Low maintenance costs
- Easy and safe to operate
- Fast Deployment

Technology Capabilities:

- Bacterial disinfection
- Reduces scale formation (biofilms and algae)
- Eliminates sulfate reducing and acid producing bacteria
- oxidizes heavy metals
- reduces total dissolved solids - converts to TSS
- Eliminates foul odor - H2S, NH3, Mercaptans
- Replenish dissolved oxygen
- Reduces organics/ BOD / COD

Aqua Pulsar

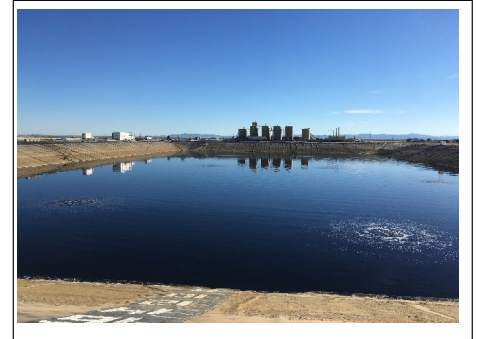
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Scope of Project:

Aqua Pulsar was contracted to provide an onsite, mobile water treatment technology to treat and reuse produced and flowback water from oil & gas wells.

Objective:

To treat produced water in frac pit that was piped in from various produced wells in the area over a period of six months. Pit water was foul smelling and contained sludge.



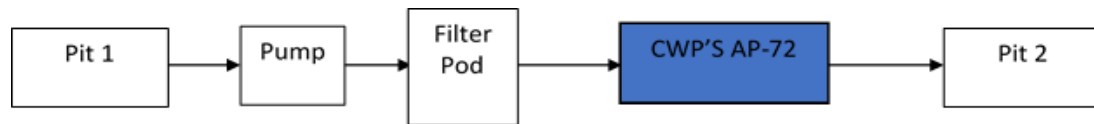
Goal: Treat pit using AP72 mobile unit

- Treat pit to reduce hydrogen sulfide to bring client into compliance
- Recycle and reuse pit water for fracking of new wells
- Address high dissolved salt levels of borates and sulfates in influent water

Influent Water characteristics

TDS, mg/l	pH	Total Hardness (mg/l, CaCO3)	Total Alkalinity (mg/l, CaCO3)	Chloride, mg/l	Borate, mg/l	Sulfate, mg/l
65045	7.62	3453	439	37900	355	760

Field Set up:



Test results:

- Hydrogen sulfide was reduced to non-detect levels after electro-oxidation treatment
- Water quality improved markedly
- Treated brine worked satisfactory with Frac chemicals from leading Frac service provider
- Treated water was reused for fracking new wells in 80:20 with treated : fresh water ratio meeting client's criteria
- AP electro-oxidation technology successfully kills sulfate reducing bacteria (SRBs), acid producing bacteria (APBs) and slime forming bacteria
- Scale causing minerals such as Ba, St, Ca and Mg are easily removed by gravity settling. Additional filtration can be implemented if needed
- Removes heavy metals such as Iron which are easily oxidized and removed through precipitation, adsorption and filtration, if needed

H2S Before Treatment, mg/l	H2S After Treatment, mg/l
> 200	ND

