Case Study ▶ Permian Basin

Large E&P Operator in Permian Basin Uses ZerO2 to Reduce Emissions, Capture Full Value of Production Stream

Situation

A multinational exploration and production company with significant operations in the Permian Basin needed a solution to continue developing its oil and gas assets in compliance with stringent emissions standards and without increasing lease operating costs or reducing economic returns.

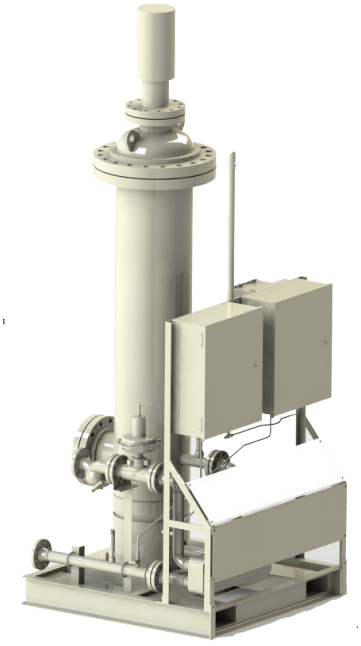
The operator's area of operation covers over 100,000 net acres reaching from the city of Midland in west Texas to the border of New Mexico. The company recently told the market it plans to invest heavily in the Permian Basin by 2020 to grow production significantly.

To achieve its growth plan, the operator required a solution to proactively handle emissions of Volatile Organic Compounds (VOCs) from tank vapor gas and Nitrogen Oxides (NOx) produced when VOCs are burned using flares or combustors. Importantly, the solution needed to have a minimal impact on operating costs and not require significant capital investment.

Solution

The operator turned to EcoVapor for a solution to handle its emissions of VOCs and reduce or eliminate NOx while avoiding any adverse impact to operations, cash flow or financial returns. EcoVapor applied its ZerO2 oxygen removal technology in a staged rollout covering an initial five production pads.

Born from EcoVapor's proprietary vapor recovery technology, its patented ZerO2 systems offer operational flexibility, modularity and reliability. ZerO2 units can be all-electric, using existing lease power or gensets, are skid mounted and have a small 4'x4' footprint so they can be installed on any production pad. With no moving parts, ZerO2 units are extremely reliable.



The ZerO2 rollout proceeded as follows:

- September 2017. Three ZerO2 units installed and run in parallel on the first production pad, handling over 1.0 MMcf per day of flash gas.
- October 2017. Three more ZerO2 units installed on second production pad handling 800 Mcf per day of flash gas.
- December 2017. Three additional ZerO2 units installed on third production pad handling an initial 750 Mcf per day. Additional development drilling and turning more wells to production increased production and in April 2018, two more ZerO2 units were installed to process flash gas volumes of up to 1.5 MMcf per day.
- July 2018. Six ZerO2 units were installed on a fourth production pad with capacity to process an expected 1.8 MMcf per day of flash gas.

Results

The ZerO2 solution gave the operator a scalable, efficient and reliable method to process rising flash gas volumes generated from continued development of its Permian Basin asset position. The multiple operational, economic and regulatory benefits of implementing the ZerO2 solution are summarized below:

- Eliminate the flaring or combusting of flash gas by capturing 100% of tank vapors, as compared to typical efficiency levels of 80% for competing solutions.
- Easily achieve compliance with current emissions standards and even more stringent regulations likely to be introduced by federal and state regulators in the future.
- Reduce Reid Vapor Pressure (RVP) by flashing gas at atmospheric pressure and capturing it before the oil is transported.
- Generate incremental revenue and profits by capturing and selling rich, high-value tank vapor gas previously lost by flaring or combusting.
- Improve the quality of sales gas by removing oxygen from the gas stream and ensuring consistent, ongoing production and revenue by avoiding the triggering of slam valve safeguards.
- Maintain operational reliability by adopting the ZerO2 units, which have no moving parts and minimizes the impact on unexpected maintenance and repair costs.

	Emissions Reductions (Tons Per Year)		
Pad	**VOCs**	**NOx**	**CO**
Pad 1	66.7	6.3	56.3
Pad 2	53.3	5.1	45.1
Pad 3	50.0	4.8	42.3
Pad 4	100.0	9.5	84.5
Pad 5	120.0	11.4	101.4
Total	**390.2**	**37.1**	**329.6**

This table summarizes the estimated emissions reductions based on installations made to date. Emissions reductions are estimated based on an 80% efficiency rate generally attributed to Vapor Recovery Tower technology.

To put the impact of the total estimated emissions reductions in perspective, the reduction in VOC emissions are equivalent to removing approximately over 28,000 passenger vehicles from the nation's roads for a year, using per-vehicle estimates from the *EPA's publication Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks*.

Based on the successful applications of the ZerO2 solution, the operator requested that EcoVapor design a larger unit to handle greater volumes of flash gas expected to be produced by its Permian Basin growth plan. These new units can each process 1.2 MMcfd and will be deployed in the second half of 2018.

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Contact us today at 1.844.NOFLARE (844.663.5273) or Info@EcoVaporRS.com to see if ZerO2 is right for your operations and if you're ready to Flare Less, Sell More.