

Finite's Compressed Air Filters Protect Gas-Fueled Engine- Generators at Gas Well Drilling Site

Market Application Publication



Background

During gas well drilling, large amounts of water are needed to lubricate, cool, and flush away debris from the drill bit as it cuts into the ground. At remote, arid sites, it has been necessary to truck in clean water and haul away waste water to a disposal well or other approved disposal site.

Alternately, dirty water can be pumped to large evaporation ponds. In any case, hauling water can be very expensive, particularly where water sources and/or disposal sites are far from the drilling operation.

Application

A new method has been developed that cleans and recycles drilling water. While an initial supply of clean water must still be trucked in, as this water becomes contaminated with drilling debris, instead of hauling it away, it is pumped to a dirty-water settling pit dug near the wellhead. From here, the water passes through an electrically powered process plant where drilling debris is removed. The water is then transferred to a clean-water holding pit to be reused for drilling.

The process plant operates continuously until drilling is completed. This new method eliminates the cost of repeatedly trucking water in and out.

Contact Information

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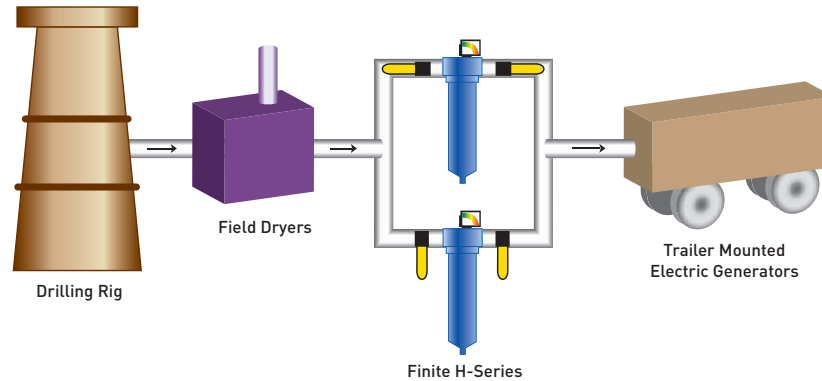
Features

- Coalescing, particulate and adsorption filter elements
- Optional indicators, gauges, and drains
- Temperatures to 450° F (232° C)
- Pressures to 500 PSIG (34 bar)
- Connection sizes from 1/4" to 3" NPT, BSPP & BSPT
- Flows from 10 to 1660 SCFM (17-2822 m3/hr)

Parker Solution: Finite's Compressed Air and Gas Filters

A process plant removes drilling debris from a closed-loop water-recycling system to conserve water and eliminate the cost of hauling water to and from the drilling site. The plant is powered by a gas-fueled engine-generator. Gas, drawn directly

from nearby wells, is final-filtered with Finite H-Series compressed air and gas filters to remove solids and liquids not trapped by bulk dryers and slug catcher. Finite's 7CVP filter element was used for a low pressure drop and a high efficiency of 99.5%.



Case Study

At a remote drilling site in Wyoming, where utility electrical power is not available, several trailer-mounted, gas-powered, electrical generators provide power for the water processing plant. These generators are fueled by natural gas from the drilling site. Since this gas comes directly from nearby wells, it contains many contaminants which can foul the generator engines.

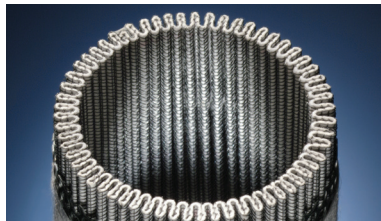
When the process was first used, the operator piped the gas to bulk dryers, which remove bulk liquids. However, the operator quickly found out that carryover solids and liquids from the slug catcher remained in the gas stream which could cause engine damage.

To trap carryover solids and liquids, the operator installed Finite's compressed air filters with 7CVP elements downstream from the dryers. Because the water processing plant requires 24/7 operation until drilling is complete, the operator cannot shut down the system to change the filter.

Instead, two filters are used to protect each electrical generator. When one filter reaches the recommended differential change-out pressure, the flow is switched to the parallel filter, allowing the first filter to be replaced. Since Finite H-Series filters have been installed, no further problems with engine damage from contaminated fuel gas have been experienced.

Filter Element Types Used in this Application

Media type 7CVP



Finite's 7CVP media consists of two filter layers between metal retainers. The outer layer removes aerosols while the inner layer traps solid particles, protecting and extending the life of the outer layer. This coalescing element is 99.5% efficient at 0.5 micron.

7CVP elements are used in bulk liquid coalescing applications or when relatively high efficiency and low pressure drop are required. A special 7DVP media is constructed the same way; however, it allows for higher temperature applications.

Only available in 1 1/4" NPT port size housings and larger

H-Series Product Specifications

Pressure	Up to 500 PSIG
Port Sizes	1 1/4" to 3" NPT
Flows	10 to 1600 SCFM at 100 PSIG
Max. Temp.	175° F (450° F option available)
Elements Available	Coalescing, Particulate, and Adsorption Media
Accessories	Optional indicators, gauges, and drains

