

Waukesha Engine Case History Series

VHP Series engines help compressor uptime reach 98%



Subject:
Mississippi Canyon 109 Production Platform, BP Exploration, Gulf of Mexico

Facility Profile:
One of four British Petroleum oil and gas production platforms in the eastern Gulf of Mexico, MC 109 sits 33 miles (52 km) off the Louisiana coast. The platform's 38 wells produce 10,500 barrels of crude from the ground daily, as well as 15 million cf^3 (424 809 m^3) of gas per day. The oil and gas are pumped to onshore refineries for processing and sale.

Installation Requirements:
MC 109's twin Ariel JGK/4 in-line compressors operate 24 hours a day, 365 days a year. Of the 15 million cf^3 (424 809 m^3) of gas moved daily, 7 million cf^3 (198 244 m^3) are pumped into the pipeline for sale, while 8 million cf^3 (226 565 m^3) are re-injected into the reservoir at 1200 psi (82.8 bar) to help maintain reservoir pressure.

Waukesha Equipment:
Prime movers for the compressors are two Waukesha VHP Series engines — P9390GSI, capable of 1642 bhp (1224.5 kWb) at 1000 rpm; and L7042GSI, rated at 1232 bhp (918.7 kWb) at 1000 rpm. The engines are serviced by Waukesha Engine distributor Reagan Equipment. The engines utilize Waukesha's patented Microspin[®] lube oil filtration system, which eliminates oil filter disposal and can extend oil change intervals up to 40%.

Compression History:
BP Exploration put MC 109 on-line in 1991. Since then, the platform has maintained a 98% uptime record for production. The Waukesha VHP engines are in constant operation; one at a time can be shut down for scheduled preventive maintenance. More involved maintenance work — annual inspections and top-end overhauls — is scheduled during a seven-day window in mid-April to take advantage of good weather and decreased demand. The engines' first top-end overhauls were performed at approximately 24,000 hours; BP Exploration reported minimal wear to the heads, rockers and valves.

Why Waukesha:
BP Exploration is an environmentally conscious corporation. Waukesha VHP Series engines were specified for reliability and simplicity, as well as their clean-burn characteristics. Similarly, the Microspin[®] system eliminates costly and hazardous oil filter disposal from the platform to onshore disposal sites, while providing longer intervals between maintenance.

Unique Characteristics:
Due to the nature of oil and gas production, BP Exploration cannot afford compressor shutdowns that halt operations. To cool the engine-compressor packages, heat exchangers were installed, lowering the jacket water heat to 175° F (79°C). Platforms in the Gulf of Mexico are subjected to an environment that preys on machinery, and unpredictable weather that can play havoc with maintenance schedules. Waukesha engines stand up to the harsh climate and can be serviced by the on-site crew.

Cost Effectiveness:
Waukesha's reliable VHP Series engines, coupled with a solid PM program, are the reason for MC 109's 98% uptime record. In addition, since the platform cannot carry many spare components, Reagan Equipment maintains a large inventory for offshore applications. And according to BP Exploration, the investment in Microspin[®] lube oil filtration systems has paid for itself in one year. The company has ordered Microspin[®] systems for the Waukesha engines on its three other Gulf of Mexico platforms.

For more information on this Waukesha Engine installation, or Waukesha's gas compression capabilities, contact Waukesha Engine, A Halliburton Company, 1000 West St. Paul Ave., Waukesha, WI 53188-4999, (414) 547-3311, Fax: (414) 549-2795.



The Waukesha L7042GSI VHP engine is rated at 1232 bhp (918.7 kWb) at 1000 rpm.



Above, 38 wells produce 10,500 barrels of crude oil and 15 million cf^3 (424 809 m^3) of gas per day. Right, Joe Bell, BP Exploration maintenance specialist, checks the Microspin[®] lube oil filtration system.



MC 109 is one of four BP Exploration platforms in the Gulf of Mexico.





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*“At three years, valve
recession starts to take its
toll; but when we looked at
the Waukesha engines, the
heads, rockers and valves
looked pretty good.”*

*Ken Thompson
Operations Supervisor, MC 109
USA Offshore
BP Exploration Inc.*



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<http://www.waukeshaengine.com>

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