

Our energy working for you.™



G-Drive

Case History

CTM El Risco

Where:

Mexico Federal District

What:

Cummins G-Drive QSK78-G8 engine

Purpose:

Standby power for a combined waste-water and rainwater pumping plant that reduces flooding in the rainy season

Cummins G-Drive Finds the Answers at Mexican Water Pumping Plant

A 40-year-old CTM El Risco water extraction plant in Mexico Federal District needed a refit to cope with flooding in the rainy season. Cummins G-Drive provided the standby power required through Cummins Spain dealer Progener as part of an overall project run by Spanish company INDAR.

Progener installed a V18 cylinder, 78 liter displacement Quantum Series QSK78-G8 engine to power an emergency generator, keeping the pumps working should the mains power supply fail. But for this to be achieved, Cummins first had to solve a serious issue at the site: the backup itself could potentially fail through over-heating.

The initial site inspection looked into the likely causes and came up with the answers. Clearly there was a major problem with the pressure. To ensure stability of the power supply Progener recommended a maximum pressure reading for the unit of 9Hg, but a direct reading on a Fluke digital multimeter was 67.98Hg! The inspection highlighted a number of reasons why this was happening, including gain regulation, a lack of coolant and an undersized return line.



The re-equipped plant has double the capacity to pump water



A generator set powered by a Cummins G-Drive QSK78-G8 engine provides emergency backup for the pumps

Regulating the gain was critical to ensure that the generator ran at a constant and stable rate. Implementation of an InPower switchgear system to monitor and adjust the gain from 1.0 to 0.5 regulated the QSK78-G8 engine to its normal operating speed of 1800rpm and ensured it ran efficiently. Once the gain was regulated, a 50:50 EG/water coolant with Diesel Coolant Additive (DCA) was added to the system along with new, larger 1½" inline tubes to ease restriction and increase effective cooling. Progener also recommended replacing the timing actuator in the Gate Controller Switch (GCS) to improve control of fuel delivery to the engine.

When all the problems had been addressed, it was time to carry out a test. A water tank at the site was filled to capacity and the Cummins QSK78-G8 powered unit was used to power the four pumps needed to clear the water out. At the start of the test the first pump placed a power load of 960 kVA. The second pump moved the load to 1950 kVA. By the time the fourth pump kicked in the power load had increased to 2654 kVA before the tank was successfully drained. The test pumping operation had met the operational criteria and had emptied the tank within 20 minutes. The Cummins QSK78-G8 supplied consistent power to the pumps without stress in the system.

Cummins G-Drive has provided standby power for a pumping plant that protects local residents in Mexico Federal District from flooding.

Cummins G-Drive engines are renowned for delivering vital prime, standby or continuous power solutions to help keep the world on the move. To meet the international demand for its products, Cummins manufacturing centers are currently sited in 14 key cities, across the UK, the USA, Brazil, Turkey, India, China, South Korea, Japan and Singapore.

For more information about G-Drive engines visit www.cumminsdrive.com



Our energy working for you.™
www.cumminspower.com

©2010 Cummins Power Generation Inc. All right reserved. Cummins Power Generation and Cummins are registered trademarks of Cummins Inc. "Our energy working for you." is a trademark of Cummins Power Generation. F-2301