

Dialight SafeSite® Series LED Lighting

Horizontal Well Drillers Eliminates Rig Lighting Maintenance, Saves Big on Fuel Bills with Upgrade to Dialight LED Hazardous Location Lighting

Horizontal Oil & Gas Driller Boosts Safety, Operational Efficiency and Profitability in Booming Marcellus Shale Gas Industry with State-of-the-Art High-Efficiency Lighting from LED Leader



A State-of-the-Art Masterpiece

At full deployment, Horizontal Well Drillers' flagship HWD1000 rig is a 92 ft., 250-ton top drive masterpiece of state-of-the-art technology capable of 17,000 foot drilling depth in a fully automated system. Requiring just one day to set up and another to tear down with low moving cost, the crown jewel in the fleet delivers 26,000 lbs. of torque powered by a pair of 14.0-liter Detroit engines cranking out 1,300hp.

But despite all this next-generation system technology, the HWD100 was reliant upon last generation's T8 fluorescent lighting technology to ensure adequate illumination for its round-the-clock operation--much like the many other rigs feverishly tapping the high-value Marcellus Shale Gas formation locked deep under the Appalachian Mountains.

Plagued by Incessant Lighting Maintenance

Requiring a Class I Div 1 and Class I Div 2 compliant solution to light the derrick, cellar, mud pit and shaker areas, the T8 technology was functional, but not optimal. The high-vibration environment created by the HWD1000 boring through layers of eons-old compressed rock, plus frequent transport of the rig from one site to another caused premature lighting failures. Despite lifetime ratings of some 30,000 hours for the T8 fixtures, most lasted only a small fraction of that time—typically just 6 months—in the harsh, corrosive environment, even with nighttime-only operation.

Not only was bulb failure an issue, but often the lens cover gaskets would corrode and leak, causing additional corrosion inside the fixture itself, rendering the entire unit inoperable and requiring a complete fixture changeout. Aside from the obvious expense of the fixture replacement—an average of \$270 apiece—the procedure was less than ideal from a safety perspective, requiring a rig hand to climb the erected structure to change out the fixture. Because the process required cutting power to the fixtures and interrupted production, the process was always performed under strict time constraints, in order to restore normal operating conditions as quickly as possible.

“Sometimes we could get away with just changing a bulb, but usually the entire fixture would be corroded and need a complete rebuild or replacement,” said Grizzly Kristian, the lead electrician at the company’s drill site near Lock Haven, Penn. “With eight or nine lights per derrick, plus a couple in the BOP [blowout preventer] and over the shakers, each rig might have 12-13 lights, so lighting maintenance was a big part of our job.” In fact, it was becoming too big.



Dialight's Cutting-Edge LED Lighting Promises Maximum Efficiency, Performance

Looking for a more reliable and efficient alternative, the company discovered Dialight SafeSite® hazardous location certified lighting at an oil and gas trade show hosted by Dialight authorized distributor Friedman Electric Supply. Immediately, HWD saw the potential for the ruggedized, high-efficiency LEDs to eliminate its seemingly never-ending lighting maintenance. The Dialight SafeSite High Bay and Linear products proved to be exactly the high-tech solution HWD needed to illuminate its high-tech drilling machine.

With Class I Div 1 and Class I Div 2 certified products rated for more than 100,000 hours and backed by a 5-year full-performance warranty, the Dialight solutions have delivered the right combination of safety, reliability and long-life performance for HWD. The company installed two Class I Div1 High Bays in the BOP area offering 9,500 lumen output at just 142W for a high-efficiency 67 lumens per watt. Over the shakers and on the rig, HWD installed a mix of 2-foot and 4-foot Class I Div 1 and Class I Div 2 Linear fixtures, providing an exceptional 93 lumens per watt for maximum efficiency, visibility and safety while consuming just half the electricity compared to the T8 fixtures. Plus, Dialight's precision optics place the light exactly where it's needed for a more efficient lighting schematic that's also less intrusive to the surrounding communities near HWD's drilling sites.

Dialight Delivers: Zero Maintenance + 60% Fuel Savings

As part of its rotating retrofit system, HWD has now replaced the entire lighting system on four of its rigs with Dialight LED hazardous location rated fixtures. In fact, the company is systematically replacing every T8 fixture that fails on every rig with Dialight LEDs, aiming for a complete LED retrofit of the entire fleet.



With the first rigs fully outfitted with LEDs, the company has already seen an immediate ROI. "The Dialight LEDs are definitely paying for themselves," Kristian said. "The ability to avoid having to change out just one T8s pays for one of the LEDs—no question."

In addition to the substantial maintenance savings, HWD has also realized significant fuel savings as well. With two massive diesel generators running in alternating 12-hour shifts, the company's electricity cost computes to roughly \$1 per kWh—a rate far higher than any utility provider in the United States. Even with specially-negotiated fuel rates, HWD's fuel bill is a major chunk of its operating expenses.

"The more we can do to reduce the load, this translates into direct cost savings," said Mike Dillard, Manager of Northeast Operations. "Switching out from fluorescents to the Dialight LEDs on the derrick saved us about 60 percent in our energy costs immediately and freed up capacity to power other activities more critical to the operation."

Employees have also been quick to appreciate the lighting improvement, pointing out that the work area around the LED-equipped rigs is so much brighter with the Dialight LEDs in place, which improves worksite safety.

Thoroughly impressed with the benefits of the changeout to LEDs so far, HWD already has plans to outfit new rigs with Dialight LEDs as part of the initial build process, and is looking to replace additional perimeter fixtures at their drill sites with Dialight LED lighting as soon as the next generation of products becomes available.

For more information about Dialight's SafeSite hazardous location classified lighting solutions for drilling, refinery and other hydrocarbon and petrochemical applications, visit www.dialight.com.