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*Helping drillers improve  
their performance*

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**Customer:** National EWP

**Location:** Arizona, USA

**Product:** DiscovOre  
Head assembly

CASE STUDY

**NATIONAL EWP IMPROVES EFFICIENCY AND  
SAFETY WITH DISCOVERE**



## THE CHALLENGE

National EWP, was looking to improve performance in this way when they agreed to test the new DiscovOre wireline coring system and Arrow 3S overshoot in the field at a customer's site in Arizona using a Christensen CS14.

National EWP is a drilling contractor that provides professional drilling and well services to the mining, water and energy markets. The company has facilities in Gilbert, Arizona, Elko, Nevada and North Salt Lake, Utah. Founded in 2010 by two seasoned drillers, National EWP is dedicated to operating safely and specializing in coring, direct rotary, reverse circulation exploration, flooded reverse circulation exploration and well services. Many of National's customers have very high safety standards. That dedication to safety made National the perfect company to test the new DiscovOre system and Arrow 3S overshoot.

One of the surest ways to improve the operational efficiency of an exploration project is to find a way to shorten trip time, and to do so without compromising safety. As a result, a key focus area for almost all wireline core drilling is reducing "hit time," the time it takes for an overshoot to lock onto the coring assembly after falling hundreds or thousands of feet through drilling mud. When coring five- and ten-foot lengths, reducing the hit time can make a huge difference over the course of a shift. Shortening the tube-to-tube cycle consistently means you can get more feet drilled in a day.



## THE SOLUTION

The focus for the new DiscovOre system was to **improve both efficiency and safety**. The DiscovOre system design addresses several design weaknesses of older style wireline systems. It completely eliminates the spearhead. Instead of a weak spearhead that plunges into an overshot assembly, the Arrow 3S latching takes place within the head assembly. There are no roll pins in the tube head to fail. The roll pins commonly jam up after they have been in use for some time. The Arrow 3S overshot locks into the coring assembly automatically and hits faster. The new streamlined design decreases overall weight for greater ease and safety in handling. The DiscovOre system's added advantage is that it can be used with existing pipes, tubes, core barrel components and bits regardless of manufacturer.

Greg Leavitt, an Account Manager from Fordia, Epiroc's exploration tooling division, visited the National site to help record the hit timings. He confirmed that while faster hit times were the focus of comparison, safety was the top priority for National EWP as well as their mining customers. Their commitment to safety was the driving force behind their interest in testing new products. "National was interested in the DiscovOre system and Arrow 3S overshot because they never stop looking for safety improvements," Leavitt explained.

The National drilling team was completing the final hole of a five-hole survey in an especially difficult, highly fractured formation. Blockages frequently limited core lengths to just 5 feet or less.

During testing, the National team alternated every other sample between the DiscovOre system and their unmodified, traditional head and overshot system. This was possible due to one of the DiscovOre system's advantages -it was already compatible with exploration tooling the company had. Holes ranged 300 to 2,100 feet with HO3-size tooling set up for 10-foot-long, 2.4-inch-diameter triple tube coring.



# NATIONAL WAS INTERESTED IN THE DISCOVORE SYSTEM AND ARROW 3S OVERSHOT BECAUSE THEY NEVER STOP LOOKING FOR SAFETY IMPROVEMENTS

## THE RESULTS

Two National crews worked 12-hour shifts to provide round-the-clock drilling. With 100 percent return, the drill fluid's relative viscosity averaged 30 to 35 seconds throughout the shift. At times, the drillers had achieved 10 feet of core in 10 minutes. However, when extremely fractured samples caused jamming in the tube, they retrieved cores measuring 5 feet or less. At a depth of almost 1,800 feet, the DiscovOre system's overshoot was hitting in just 3.14 minutes, or 10 percent faster than the competing overshoot.

The minutes saved as a result of the faster hit time means better coring efficiency. National appreciates that the DiscovOre design is not only more reliable and more efficient, it is also safer. The greatest increase in safety comes from its hands-free design eliminating human contact with parts while it's in service.

Fordia's goal is to improve drilling performance and the added bonus with the DiscovOre system is that it helps improve efficiency and safety. To learn more about the DiscovOre system and the Arrow 3S overshoot, visit [www.Fordia.com](http://www.Fordia.com)



At 1,800' Arrow 3S  
Overshoot descent  
in 3.14 min



= 10%

Faster than  
competition's  
overshoot

