



AGRICULTURE

Cornell 8NHTHs with Redi-Prime® Systems help with Unstable Water Irrigation Sources in Eastern Colorado

Priming and re-priming agricultural pumps is often problematic; the water source is almost always beneath the inlet piping of the pump, requiring greater NPSHr. Topography constraints often dictate where an inlet pipe can be dropped, leaving the increased NPSHr a problem the farm/ranch has to deal with. While vertical turbines are frequently used in agricultural installations, the combination the minimal submergence needs of the pump and the drawdown effect by the pump, can leave the installation unable to pump water for a portion of the year. And, in areas with wildly fluctuating water levels, the problem can be exacerbated, with the pump drawing in much mud and silt that can impede irrigation. Even attacking the problem with multi-stage pumps has the drawback of the rocks and pebbles kicked up in the flow stream, imperiling pump operation.

In Colorado, a Cornell distributor has taken on these challenges by employing a technology more often used in mining and oil/gas pumps to deal with water transfer issues for agriculture. The distributor's customer faced all the challenges of topography, changing river beds, NPSHr, and vastly fluctuating water levels, plus concerns over water rights in irrigating their fields.

Most importantly beyond the logistical considerations, the end-user had to have a reliable pump system that would replenish water into the eastern Colorado aquifer, to be in compliance with his water rights.

The distributor set up two of Cornell's 8NHTH with Redi-Prime® system, so the suction strainer basket could adjust to rising and falling water levels on the river. If the pumps ever stop receiving enough water, they could re-prime themselves. The Redi-Prime system is Cornell's patented priming and repriming system that allows priming to occur unattended. Redi-Prime® is fully automatic and doesn't require a manual shut-off valve to ensure there is no water 'carry-over' to the diaphragm vacuum pump. Redi-Prime is offered on the widest



range of dry repriming pumps in the industry, and is available on virtually all of Cornell's Solids Handling and Clear Liquids pumps, from 1.25" to 30" discharge.

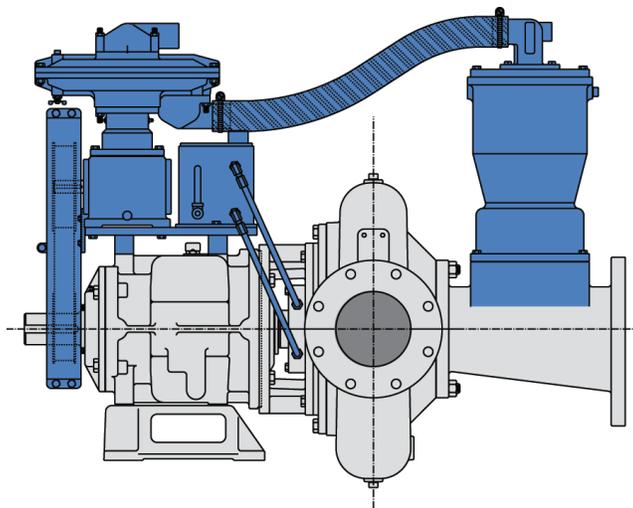
The pump selected has a four inch solid handling capability to handle any rocks that might make it through the screen or easily move any silt. In using two pumps, the system was able to produce over 7,000 gallons of water per minute at just over 120 feet of discharge head. The 8NHTH's required only 6.77 feet of NPSHr.

The pumps are housed in a building away from the river, where they can maintain and service with ease and comfort—rather than being directly over the riverbank exposed to the elements.

A Run-Dry™ seal system keeps the back of the tungsten face mechanical seals lubricated as the pumps prime

water. None of the lubricant ever sees the pumped fluid. A diaphragm vacuum pump pulling 50 CFM's on each of the pumps primes the system rapidly. The efficiency of the CORNELL 8NHHTH pump end is impressive; 81% efficiency at 1,200 RPMs using only 136 HP at the design point.

RESULTS: Already, the pumps have soaked the aquifer with enough water for the next two years; the system saves thousands of dollars a year in energy costs as compared to a turbine; the re-priming system works well without an attendant needing to be present; plus the end user can work on the pumps in a sheltered environment.



Redi-Prime®

Cornell's patented priming and repriming system allows your pumps to work properly, unattended. Redi-Prime pumps are designed with oversized suction to provide more flow, reduce suction friction losses, and handle air liquid mixtures with ease. The widest range of dry repriming pumps in the industry, Redi-Prime is available on virtually all of Cornell's Solids Handling and Clear Liquids pumps, from 1.25" to 30" discharge. Valued by customers around the world, Redi-Prime provides a distinct advantage to your application.

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